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26-30 Ekim 2018, Muğla

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29TH NATIONAL BIOCHEMISTRY CONGRESS
26-30 October 2018, Mugla

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WELCOME MESSAGE

Dear Colleagues,

This year we decided to hold the International Biochemistry Congress - 29th National Biochemistry Congress (NBC 2018) in Bodrum on 26-30 October 2018, on the 98th anniversary of the foundation of our Republic.

We are working on the congress scientific program and the program will be announced shortly.

The scientific program will include important and recent topics of biochemistry and clinical biochemistry. These issues will be transferred to the participants by many talented and valuable speakers from inside and outside the country.

The program will include oral presentations and some of these oral presentations will be presented in mini conference format.

Due to the high demand, courses and workshops will be organized before and after the congress.

The abstracts presented at the Congress will be published in the Turkish Journal of Biochemistry, which is the official publication of the Turkish Biochemistry Association and listed on SCI-E.

We invite all of our colleagues and representatives of diagnostic companies to Bodrum.

We invite you for both to celebrate the 95th anniversary of our Turkish Republic and exchange information.

We hope International Biochemistry Congress - 29th National Biochemistry Congress (UBK 2018) will be a new step to move biochemistry and clinical biochemistry further up in our country.

With my best regards,

ORGANIZING COMMITTEE

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Matthias Orth, Germany
Hassan Bayat, Iran
Edward Randell, Canada
Sten Westgard, USA

SCIENTIFIC PROGRAM

25 October 2018, Thursday — PHASELIS 3

09:00-17:00 **Westgard Rules "QC and Six Sigma", Sten Westgard,** Sedef Yenice

26 October 2018, Friday — PHASELIS 3

09:00-16:30 **Westgard Rules "QC and Six Sigma", Sten Westgard,** Sedef Yenice

26 October 2018, Friday — SALON 1

13:00-16:00 **Cell Death and Cytotoxicity**
Engin Ulukaya, Nazlıhan Aztopal

26 October 2018, Friday — SALON 2

08:30-16:00 **miRNA Course from Theory to Practice**
Abdullah Tuli, Oytun Portakal, Aylin Sepici Dinçel,
Ebru Dündar Yenilmez, Pınar Uysal Onganer, Mustafa M. Alpaslan

26 October 2018, Friday — SALON 3

09:00-16:30 **Biosensor Course**
Levent Kayrın, Umut Kökbaş, Kezban Kartlaşmış, Başak Günaştı

26 October 2018, Friday — PHASELIS 1-2

17:00-17:30 **Opening Ceremony**

17:30-18:15 **Opening Lecture**
Chairperson: Nazmi Özer
The metabolic syndrome in youth and polymorphic genes Edgard Delvin

SCIENTIFIC PROGRAM

27 October 2018, Saturday

PHASELIS 1-2

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08:00-08:10	**OP-001 Analytical performance assessment of biochemistry analyser,** Fevziye Burcu Şirin
08:10-08:20	**OP-002 Evaluation of the stability of the compensantory jaffe method within the day,** Ayla Yıldız
08:20-08:30	**OP-003 Evaluation of sysmex uf-5000 automated urine sediment analyzer performance,** Zeynep Arıkan
08:30-08:40	**OP-004 Comparison of test results obtained from lithium heparin gel tubes and serum gel tubes,** Şerif Ercan
08:40-08:50	**OP-005 Data loss from instrument result page to the laboratory result print,** Özgür Aydın
08:50-09:00	**OP-006 Relationship among internal quality control, exponentially weighted moving averages, patients results,** Hikmet Can Çubukçu
09:00-11:00	**Laboratory Management (IFCC C-CLM)**
	Chairpersons: Sedef Yenice - Süleyman Demir
	Verification of laboratory test results in the core Lab: Exploring effectiveness from the ground up
09:00-09:20	**Reducing laboratory error through review of patient results: An overview** Edward Randell
09:20-09:40	**HIL and other consistency checks** Matthias Orth
09:40-10:00	**Delta checks and the unusual and abnormal** Sedef Yenice
10:00-10:20	**Autoverification: A balancing act?** Edward Randell
10:20-10:30	**Panel Tartışma**
10:30-11:00	**Oral Presentations**
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10:40-10:50	**OP-020 AEvaluation of six sigma with different quality goals; need of harmonization and other problems,** Murat Keleş
10:50-11:00	**OP-021 Rational use of laboratory test request procedure: 25-hydroxy vitamin d,** Habib Özdemir
11:00-11:30	**Coffee Break**
11:30-12:15	**Chairperson:** Tomris Özben
	Patient based risk assesment and QC frequency: A new data-driven way to schedule your controls
	Sten Westgard
12:15-13:30	**Lunch**
13:30-14:30	**ROCHE SATELLITE SYMPOSIUM**
	Chairperson: Mehmet
	Offline Preanalytical Systems and Their "Real" Use
	Ebru Güner, Centro Laboratoriesı
	Cem Öcal, Roche Diagnostics Turkey
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	Chairpersons: Abdullah Tuli - Hilal Koçdor
14:30-14:50	**Are mutations randomized?** Abdullah Tuli
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15:10-15:30	**Life without cancer: utopia or reality?** Engin Ulukaya
15:30-15:50	**Examples to the most successful transcriptomic analyses of individualized diagnosis and therapy of cancer,** Ali Osman Güre
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16:00-16:30	**Coffee Break**
16:30-17:30	**Archem Satellite Symposium**
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17:30-18:00	**Chairperson:** Aylin Sepici Dinçel
	Digital PCR and applications Müslüm Akgöz
18:00-18:30	**Leadership in clinical laboratory management** Sedef Yenice

SCIENTIFIC PROGRAM

27 October 2018, Saturday

PHASELIS 3

08:00-09:00	**Oral Presentations** **Chairpersons:** Aylin Haklıgör - Oğuzhan Zengi
08:00-08:10	**OP-007 The importance of nectin2 and nectin4 adhesion molecules in breast tumors,** Murat Serilmez
08:10-08:20	**OP-008 Evaluating the anti-tumorogenic potential of memantine in 4t1 mice breast cancer tumor model,** Elif Burcu Bali
08:20-08:30	**OP-009 Wwox knockout cells exhibit chromosomal alterations and copy number variations,** Bahadır Batar
08:30-08:40	**OP-010 Esculetin enhances caspase-dependent apoptotic cell death and insulin secretion in ins-1 cells,** Ayşe Karatuğ Kaçar
08:40-08:50	**OP-011 The relationship with apoptosis of bortezomib resistance in multiple myeloma cell lines,** Emine Öksüzoğlu
08:50-09:00	**OP-012 Mdr transporters responsible for time-dependent extrusion of bortezomib from multiple myeloma cells,** Gül Kozalak
09:00-11:00	**TBD Academy Workshop / A roadmap for more effective oral presentations** Ferhan Sagin, Merve Evren
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13:30-14:30	**Oral Presentations** **Chairpersons:** Güliz Armağan - Murat Cihan
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14:50-15:10	**Metabolic effects of natural and artificial sugars** Hakan Boyunaga
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15:30-15:40	**OP-135 A discussion study for laboratory process education demands and needs of our technicians,** Saliha Aksun
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16:30-18:30	**Oral Presentations** **Chairpersons:** Funda Güçel - Koza Murat
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16:40-16:50	**OP-044 Tau protein and 8-iso-prostaglandin in children with attention-deficit hyperactivity disorder,** Filiz Atalay Çubuk
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17:30-17:40	**OP-049 Platelet levels and neutrophil/lymphocyte ratio in thyroid nodules with and without cancer diagnosis,** Soycan Mızrak
17:40-17:50	**OP-050 Localization of tissue requiring surgery in hyperparathyroidism: case report,** Elif Değirmen İsen
17:50-18:00	
18:00-18:10	**OP-052 Protective effect of nutraceuticals on oxidant-antioxidant levels in the rat breast cancer,** Hüseyin Fatih Gül
18:10-18:20	**OP-053 Investigation of phospholipase a2 and matrix metalloproteinase-9 with coronar plaque structure,** Neslihan Sungur
18:20-18:30	**OP-054**

SCIENTIFIC PROGRAM

27 October 2018, Saturday — SALON 3

08:00-09:00	**Oral Presentations** **Chairpersons:** Filiz Bakar Ateş - Yeşim Güvenç Demirağcı
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08:10-08:20	**OP-014 Blood mda and gsh levels in gastritis and cancer patients,** Aysel Güven
08:20-08:30	**OP-015The role of coagulation proteases in regulation of enos uncoupling in diabetic nephropathy,** İbrahim Söğüt
08:30-08:40	**OP-016 The protective and antioxidant effects of astaxanthin against cisplatin-induced toxicity in rats,** Saniye Ada
08:40-08:50	**OP-017 Effects of gender and glucose-based nutrition on redox homeostasis in drosophila melanogaster,** Karolin Yanar
08:50-09:00	**OP-018 Can avanafil and zaprinast change some selected cytokine levels in ovariectomized rat's liver?,** Zübeyir Huyut
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13:30-16:00	**Oral Presentations** **Chairpersons:** Gülberk Uçar - Canan Yılmaz
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13:50-14:00	**OP-030 Organotoxic effects of deguelin and docetaxel in experimental lung cancer model,** Hakan Cengiz
14:00-14:10	**OP-031 The effect of combined treatment of fk506 and akt inhibitory on pdgf-induced pc3 cells invasion,** Harun Ün
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14:30-14:40	**OP-034 Detection of circulating tumor cells (ctcs) in various types of cancer,** Emine Terzi
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16:40-16:50	**OP-056 An uncommon hemoglobin variant: hemoglobin moabit,** Hülya Ünal
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17:00-17:10	**OP-058 A case of floating-harbor syndrome with a novel mutation,** Malik Ejder Yıldırım
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17:20-17:30	**OP-060 Inhibition effect of arylidene indanones derivatives on acetylcholinesterase enzyme activity,** Halide Edip Temel
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17:40-17:50	**OP-062 The effect of suberoylanilide hydroxamic acid on fibrosis markers in human hepatic stellat cell line,** Merve Özel
17:50-18:00	**OP-063 Phage display derived antibodies enrich aliphatic residues in antigen binding regions,** Murat Karadağ
18:00-18:10	**OP-064 An evaluatin of 8-isoprostaglandin concentrations in children-who-stutter,** Seher Kara Öngel
18:10-18:20	**OP-065 The relationship between vitamin d levels and respiratory and food allergy,** Sibel Kulaksızoğlu
18:20-18:30	**OP-066 Anti-cancer activity of paclitaxel loaded ngo nanotherapy systems on mda-mb-231 cell lines,** Neşe Keklikçioğlu Çakmak

SCIENTIFIC PROGRAM

28 October 2018, Sunday

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08:10-08:20	**OP-068 Analysis of preanalytic errors by different autoanalyzer and sample types,** Cuma Mertoğlu
08:20-08:30	**OP-069 Evaluation of iodine levels in last three years; retrospective study,** Hümeyra Acıkan
08:30-08:40	**OP-070 Fasting and non-fasting lipoproteins are not the same,** Betül Özbek İpteç
08:40-08:50	**OP-071 Performance with different equations for ldl-c estimation between healtly population in turkey,** Mehmet Fatih Alpdemir
08:50-09:00	**OP-072 Comparison of emergency biochemistry tests with li-heparin (barricor ™) and gel tubes,** Bilal İlanbey
09:00-10:30	**Hematology and Immunology Panel** **Chairpersons:** Ebubekir Bakan - Ebru Sezer
09:00-09:20	**Hemostasis testing** Adnan Haşimi
09:20-09:40	**Newly discovered effects of vitamin K beyond coagulation system: relationship with aging** Fikriye Uras
09:40-10:00	**Is immunologic aging preventable?** İshak Ozel Tekin
10:00-10:15	**Genetic heterogeneity and molecular diagnosis of HbH disease** Mehmet Akif Curuk
10:15-10:25	**OP-140 Evaluation of suspicious positive hla b27 results in flow cytometry,** Bağnu Orhan
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13:50-14:10	**Definitive proteomics application technologies in basic research** Nurhan Ozlu
14:10-14:30	**Proteomic applications in clinical trials and challenges** Aysel Ozpinar
14:30-14:50	**Data integration and network modelling techniques in proteom applications** Nurcan Tuncbag
14:50-15:00	**Discussion**
15:00-15:30	**Oral Presentations**
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15:10-15:20	**OP-103 Development of functionalised qcm based biosensors to detect breast cancer cells,** Merve Yılmaz
15:20-15:30	**OP-104 NAD+ dependent formate dehydrogenase production and enhancement of activity via protein engineering,** Huri Bulut
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16:00-16:15	**Rational use of medical laboratory in pediatrics** Rukiye Eker
16:15-16:30	**Rational test utilization** Suat Hayri Kucuk
16:30-16:45	**Reflex test and reflective test in practice, report format and interpretation** Muhittin Serdar
16:45-17:00	**Autoverification** Abdurrahman Coskun
17:00-17:15	**Consultation** Mehmet Senes
17:15-17:30	**Decision limits, critical values, and harmonization of measurement units** Doğan Yücel
17:30-17:45	**Information technology, HIMS/LIMS, in rational use of clinical laboratory** Ali Özen Akyürek
17:45-18:00	**Information technology, HIMS/LIMS, in rational use of clinical laboratory** Ziya Bolgönül

SCIENTIFIC PROGRAM

28 October 2018, Sunday

PHASELIS 3

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08:00-08:10	**OP-073 Analysis of oxidative stress depended peroxide and free fatty acids of microalgal lipid,** Nurcan Vardar Yel
08:10-08:20	**OP-074 The effect of acrylamide administration on large intestine and bladder functions in rats,** Rıdvan Bağcı
08:20-08:30	**OP-075 Prominent autofluorescence was observed in formaldehyde-fixed, paraffin embedded liver tissue sample,** Rıfat Ertekin
08:30-08:40	**OP-076 Glut 2 protein change in hepatocytes after acrylamide exposure: an immunocytochemical examination,** Sedat Kaçar
08:40-08:50	**OP-077 Correlation between phenolic ingredients and life span effects of asparagus officinalis l,** Hasan Kılıçgül
08:50-09:00	**OP-078 Hypertyroidism increases trpv1 activity in rat brain and cerebellum,** Ezgi Bektur
09:00-10:30	**Toxicology** **Chairpersons:** Sabahattin Muhtaroğlu - Alev Kural
09:00-09:20	**Exposure of women and newborn to Nis inhibitors and thyroid disease in Turkey** Aysel Ozpinar
09:20-09:40	**Effects of heavy metals and environmental chemicals on endocrine function and health** Fehime Benli Aksungar
09:40-10:00	**Laboratory and quality control studies for detection of chemical weapons** Levent Kenar
10:00-10:15	**Endocrine disrupting chemicals - research data** Aylin Sepici Dinçel
10:15-10:30	**Biochemical approach to endocrine disrupting chemicals** Nuray Ulusu
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11:45-12:55	**Oral Presentations** **Chairpersons:** Hüsamettin Vatansev - Nilgün Tekkeşin
11:45-11:55	**OP-088 Determination of urinary podocin and podocalyxin levels by liquid chromatography-mass spectrometry,** Bilge Karatoy Erdem
11:55-12:05	**OP-089 The role of methylglyoxal levels in diabetes diagnosis,** Duygu Eryavuz
12:05-12:15	**OP-090 Early postoperative changes of sphingomyelins and ceramides after sleeve gastrectomy,** Mutay Aslan
12:15-12:25	**OP-091 Our lab experience in establishing acylcarnitine-aminoacid cutoffs in newborn screening by tandem ms,** Özlem Demirelce
12:25-12:35	**OP-092 Determination of enos gene polymorphism and plasma adma concentrations in patients with lung cancer,** Zafer Bayraktutan
12:35-12:45	**OP-093 Relationship between serum no and adma levels with acute exacerbation of copd,** Pelin Uysal
12:45-12:55	**OP-094 Increased serum asymmetric dimethylarginine levels in workers with lead exposure,** Saadet Çelik
12:45-13:30	**Lunch**
13:30-18:00	**TBD Academy Workshop / LC-MS/MS use in clinical laboratory practice** Ali Ünlü, Fehime Aksungur, Hüseyin Kayadibi, Sedat Abuşoğlu **Quota is limited**

SCIENTIFIC PROGRAM

28 October 2018, Sunday — SALON 3

08:00-09:00	**Oral Presentations** **Chairpersons:** Sedat Abuşoğlu - Pınar Eker
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08:10-08:20	**OP-080 Evaluation of protein oxidation in streptozotocin induced diabetic rats,** Meltem Demir
08:20-08:30	**OP-081 Effects of boric acid on heart tissue damage caused by renal ischemia/reperfusion,** Yakup Kara
08:30-08:40	**OP-082 Neuroprotective effects of boric acid on brain against renal ischemia/reperfusion injury,** Ceyhan Hacıoğlu
08:40-08:50	**OP-083 Renal ischemia-reperfusion effect on spleen as remote tissue damage and role of boric acid,** Fatih Kar
08:50-09:00	**OP-084 The view of the incoming students from middle east countries to biochemistry course at health science education,** Rabia Şemsi
09:00-10:30	**Standardization of HbA1c and EQAS** **Chairpersons:** İsmail Temel - Mutay Aslan
09:00-09:20	**National benefits from EQAS suppliers** Semra Boğa
09:20-09:40	**A story of manufacturing of reference material for HbA1c** Fatma Akcadag
09:40-10:00	**Evaluation of EurA1c 2016 and 2017 studies and ranking of Turkey among other countries** Diler Aslan
10:00-10:30	**Oral Presentations:**
10:00-10:10	**OP-085 Transition to glucometer integrated to the information management system: a survey study,** Levent Deniz
10:10-10:20	**OP-059 A practical approach for identifying hbs or hbd variants in electrophoresis: the solubility test,** Cihan Coşkun
10:20-10:30	**OP-087 Effect of angiotensin (1-7) treatment on oxidative stress parameters, ima and mpo levels in diabetes,** Nazlı Otuzaltı
10:30-11:00	**Coffee Break**
11:45-12:55	**Oral Presentations** **Chairpersons:** Levent Kayrın
11:45-11:55	**OP-095 Detection of β-thalassemia cd44 mutation by using piezoelectric biosensor for non-invasive diagnosis,** Umut Kökbaş
11:55-12:05	**OP-096 A new enzyme biosensor design for rapid screening of congenital adrenal hyperplasia in newborn,** Ebru Dündar Yenilmez
12:05-12:15	**OP-097 Prednisolon tayinine yönelik moleküler damgalanmış polimer esasaı biyosensör sistemi geliştirilmesi,** Erhan Canbay
12:15-12:25	**OP-098 Synthesis and application of p (hema-maga) -cts nanopolimmer for urease immobilization,** Hilmiye Deniz Ertuğrul Uygun
12:25-12:35	**OP-099 Design of polyaniline based urea biosensor,** Kezban Kartlaşmış
12:35-12:45	**OP-100 Development of a reusable molecularly imprinted impedimetric sensor for cortisol detection in saliva,** Zihni Onur Uygun
12:45-13:30	**Lunch**
12.45-12.55	**OP-101 Design of a new biosensor for the determination of ferrous iron in blood,** Ahmet İlhan
13:30-15:30	**TBD Academy Workshop / Validation-Verification Application Course** Muhittin A. Serdar, Murat Cihan
15:30-16:00	**Coffee Break**
16:00-18:00	**TBD Academy Workshop /** **Communication, Networking and Social Media Usage in Scientific Careers** **Ferhan Sağın,** Ali Burak Özkaya

SCIENTIFIC PROGRAM

29 October 2018, Monday — PHASELIS 1-2

08:00-09:00	**Oral Presentations** **Chairpersons:** Settar Kosova - Elmas Öğüş
08:00-08:10	
08:10-08:20	**OP-106 Diabetes mellitus relationship with vitamin d and vitamin b12 levels: a retrospective analysis,** İlhan Sabancılar
08:20-08:30	**OP-107 Assessment of cardiac dysautonomia and vitamin d levels in multiple sclerosis patients,** Müjgan Ercan Karadağ
08:30-08:40	**OP-108 Comparison of immunoassay methods ipth measurement in hemodialysis patients,** Mine Büşra Pehlivan
08:40-08:50	**OP-109 Is high sensitive troponin i effected by egfr rate in asymptomatic renal failure patients?,** Zümrüt Mine Işık Sağlam
08:50-09:00	**OP-110 Vitamin d levels in childhood and vitamin d supplementation,** Yasemin Ardıçoğlu Akışın
09:00-10:30	**IT and Databased Approach in Clinical Laboratory** **Chairpersons:** Özlem Gülbahar - Cihan Coşkun
09:00-09:20	**IT and Databased Approach in Clinical Laboratory**
09:20-09:40	**Data production and use in clinical laboratory management** Merve Sibel Gungoren
09:40-10:00	**Autoverification in laboratory practice** Deniz I. Topcu
10:00-10:10	**Approach to data mining with the review of clinical laboratory specialist** Muhittin A. Serdar
10:10-10:30	**Discussion**
10:10-10:20	**OP-117 The prevalence of illegal substance use in balikesir region; a laboratory data mining study,** Medine Bitigiç Alpdemir
10:20-10:30	**OP-118 25-oh vitamin d3 dependent intact parathyroid hormone reference value study,** Büşra Efem Toy
10:30-11:00	**Coffee Break**
11:00-11:45	**Chairperson:** Ferhan Girgin Sağın **Mitochondrial ROS in cell signaling and in mechanism of neurodegeneration** Andrey Abramov
11:45-12:45	**SIEMENS SATELLITE SYMPOSIUM** **Chairpersons:** Oytun Portakal **Roadmap to a Digital Transformation for the Clinical Laboratory** Jessica Eddy**, Siemens Healthineers, Digital Ecosystem Lead for Laboratory Diagnostics, Global Marketing Manager**
12:45-13:30	**Lunch**
13:30-15:00	**The Biochemistry of Intestines, Microbiome and GAPS Diet** **Chairpersons:** Zeynep Güngör - Hacı Ömer Ateş
13:30-13:50	**Intestinal structure and biochemistry** Yasemin Akcay
13:50-14:10	**Therapy for intestine, diet and supports** Aslıhan Avcı
14:10-14:30	**Diseases related to intestine** Asuman Kaplan Algın
14:30-14:45	**Intestinal microbiota and bile acids** Huseyin Kayadibi
14:45-15:00	**Discussion**
15:00-15:30	**Coffee Break**
15:30-16:15	**Chairperson:** Ali Ünlü **Musculoskeletal and metabolic statuses of childhood acute lymphoblastic leukaemia survivors: The role of vitamin D** Edgard Delvin
16:15-18:00	**Organisation of Central Laboratory** **Chairpersons:** Münire Hacıbekiroğlu - Melek Demir
16:15-16:35	**Cost-effective approach** Hale Aral
16:35-16:55	**Experience from central laboratory organisation of Cerrahpasa Medical Faculty** Munire Hacibekiroglu
16:55-17:15	**Lean laboratory practice** Neval Aksoy
17:15-17:30	**Discussion**
17:30-18:00	**Oral Presentations**
17:30-17:40	**OP-134 Evaluation of analytical performance in clinical chemistry laboratory via measurement uncertainty,** Ömer Kaya
17:40-17:50	
17:50-18:00	**OP-136 Investigation of the readability of notification texts of the double test in the internet,** Çiğdem Damla Deniz

SCIENTIFIC PROGRAM

29 October 2018, Monday

PHASELIS 3

08:00-09:00	**Oral Presentations** **Chairpersons:** Yasin Bayır - Halide Edip Temel
08:00-08:10	**OP-111 Protective effects of nigella sativa on carbon tetrachloride-induced hepatotoxicity model in rats,** Nurcan Evliyaoğlu
08:10-08:20	**OP-112 Investigation of lithium carbonate's effect on human blood lymphocytes in in vitro environment,** Bülent Adar
08:20-08:30	**OP-114 In acute distal colitic rats; healing effect of medical ozone therapy,** Feyza Yağmur Tekeli
08:30-08:40	**OP-115 Antiproliferative effects of thymoquinone in hepg2 cells involve increased ceramide and caspase 3,** Ebru Afşar
08:40-08:50	**OP-116 Thymoquinone upregulates neutral sphingomyelinase activity and ceramide levels in mcf7 cells,** Sabriye Kaya
08:50-09:00	**OP-141 Detection of afp values in patient with ataxia telangiectasia,** Oytun Portakal
09:00-10:30	**Personalized Medicine** **Chairpersons:** Levent Kayrın - Özlem Dalmızrak
09:00-09:20	
09:20-09:40	**The role of GST1 inhibitors in breast cancer therapy** Yasemin Aksoy
09:40-10:00	**Evaluation of IDH mutation in glial tumors by free DNA and oncometabolic biomarkers** Huray Islekel
10:00-10:15	**Multifunctional proteins affecting angiogenesis** Funda Kosova
10:15-10:30	**CRISPR/cas9 mediated genome editing and its potential role in personalised medicine** Gulnihal Kulaksiz Erkmen
10:30-11:00	**Coffee Break**
11:45-12:45	**Oral Presentations** **Chairpersons: Pınar Alkım Ulutaş -** Ayşegül Çört
11:45-11:55	**OP-119 Biochemical evaluation of a novel anti-cancer drug candidate,** Selvi Durmuş Erim
11:55-12:05	**OP-120 Investigation of anticancer potential of silicon (iv) phthalocyanine and napthalocyanine,** Burak Barut
12:05-12:15	**OP-121 A new approach for targeted cancer therapy: synthesis and characterization of nanoparticle,** Ümmühan Fulden Bozkaya
12:15-12:25	**OP-122 Biochecmical and molecular response to personalized radioligand therapy at metastatic prostate cancer,** Emine Acar
12:25-12:35	**OP-123 The comparison of gene expression of individuals with lower g6pd enzyme activity,** Başak Günaştı
12:35-12:45	**OP-124 Estimation of functional snps in aph1b gene by using computer based software tools,**Tuğba Kaman
12:45-13:30	**Lunch**
13:30-15:00	**Oral Presentations** **Chairpersons:** Meltem Demir - Abdullah Sivrikaya
13:30-13:40	**OP-125 Investigation of vaspin, visfatin, chemerin and il-18 levels in patients with migraine,** Ahmet Dönder
13:40-13:50	**OP-126 Investigation of copeptin/ghrelin levels in individuals with respiratory diseases,** Gamze Çağatay
13:50-14:00	**OP-127 The effects of diet and exercise treatment in irisin, adiponectin, interleukin-6 levels in obeses,** Gülay Sezgin
14:00-14:10	**OP-128 Relationship between albuminuria levels and paf-ah in patients with diabetic nephropathy,** Özlem Özge Sezgin
14:10-14:20	**OP-129 Transformation of white adipose tissue to brown adipose tissue: irisin and its metabolic effects,** Zerrin Kutlu
14:20-14:30	**OP-130 Serum hyaluronidase activity in patients with bladder cancer,** Tuba Özgün
14:30-14:40	**OP-131 Inflammatory response evaluation of sleep apnea,** Ercan Saruhan
14:40-14:50	**OP-132 Zinc analysis in multipl sklerosis (ms) patients: konya examples,** Mustafa Fatih Hayırlıoğlu
14:50-15:00	**OP-133 Circulating of mirna-521 and oxidant/antioxidant status after radiation in prostate cancer,** Alev Kural
15:00-15:30	**Coffee Break**
16:15-18:00	**Recombinant Protein Production in Biotechnology** **Chairpersons:** Işıl Kurnaz - Cemile Topçu
16:15-16:35	**Cloning and raising of recombinant proteins in mammalian cells** Isil Kurnaz
16:35-16:55	**Large scale production and purification of recombinant proteins** Berna Sariyar Akbulut
16:55-17:15	**The first biosimilar drug produced from cell: filgrastim** Turgay Kacar
17:15-17:30	**Discussion**
17:30-18:00	**Oral Presentations**
17:30-17:40	**OP-137 Evaluation of antagonistic and sinergistic pair-wise antibiotic drug interactions,** Kaan Yılancıoğlu
17:40-17:50	**OP-138 Determination of physiological impacts of heavy metals in different crops through hydroponic studies,** Elif Öztetik
17:50-18:00	**OP-139 Peroxidase-like activity of magnetic porous silica microspheres and their interaction with dna,** Sevim Eda Öğüt

SCIENTIFIC PROGRAM

30 October 2018, Tuesday

PHASELIS 1-2

09:00-10:30	**The Quality of Laboratory Water and Waste Water Problem** **Chairpersons: Suat Hayri Küçük - Ayşegül Çört**
09:00-09:20	**The importance of purified water in clinical laboratory and types of laboratory water Oytun Portakal**
09:20-09:40	**Preparation and design of laboratory water Suat Hayri Kucuk**
09:40-10:00	**Verification and monitoring of purified water Enver Sarigul**
10:00:10:20	**Disposal of laboratory waste water Selda Murat Hocaoglu**
10:20-10:30	**Discussion**
10:30-11:15	**Chairpersons: Abdurrahman Coşkun** **Maximum Expected Number of Unreliable Final Patient Results, Hassan Bayat**
11:15-11:45	**CLOSING**

INVITED SPEAKER ABSTRACTS

IS-001
THE METABOLIC SYNDROME IN YOUTH AND POLYMORPHIC GENES

Edgard Delvin
CHU Sainte-Justine, Canada

Obesity and the metabolic syndrome are increasingly concerning public health concerns worldwide. Although lifestyle and nutrition are important contributors to these conditions, genetic determinants should not be disregarded. Polymorphisms in candidate genes involved in lipid metabolism have been shown to either potentially aggravate or alleviate their importance in cardiovascular risks. Examples given will foster clinical research interest and pave the way for better evaluation of populations at risk.

IS-002
REDUCING LABORATORY ERROR THROUGH REVIEW OF PATIENT RESULTS: AN OVERVIEW

Edward W Randell
Division of Clinical Biochemistry, Laboratory Medicine, Eastern Health Authority, St. John's, Newfoundland, Canada

Review of patient test results in the laboratory prior to release into the medical record has been a long standing quality practice within clinical laboratories for error detection. Actions taken during patient result review can identify specimen quality issues, specimen misidentification, analytical errors, but even highlight unusual findings that may indicate error or pathological processes where timely clinical intervention may be warranted. Often available with results of a suspect test result are results of other tests; there may also be access to previous test results, trends, and patient demographics and locations which all present key information on which to assess the validity of test results prior to reporting. Determining acceptability of reviewed results relies on considering compatibility with other available information; delta checks; identification of critical or unusually extreme results; assessing internal consistency with other related test results and treatments; or using sample quality checks including assessments for hemolysis, lipaemia, or icterus interferences on test results, or checks for contamination with intravenous fluids or incompatible anticoagulants producing unreliable test results. Whether done manually or assisted by computer technology there are no widely accepted and standardized approaches to guide patient test review in its many potential applications. Furthermore, few approaches are fail proof when used alone but sometimes require interaction between laboratory staff and clinicians to resolve unusual findings. This session will provide an overview of different approaches used to identify potential error prior to reporting and identifies a tool case of different approaches to draw on when building a customized approach that fits well with a local laboratory setting.
Keywords: error, autoverification, result review, management, validation

IS-003
HIL AND OTHER CONSISTENCY CHECKS

Matthias Orth
Vinzenz von Paul Kliniken, Institute for Laboratory Medicine, Stuttgart, Germany; University of Heidelberg, Medical Faculty of Mannheim, Mannheim, Germany

Unsatisfactory blood drawing practices and unsuitable transport conditions are the major sources for hemolyzed samples which might compromise patient results. In vivo hemolyis occurs only rarely. Visual inspection of samples for hemolysis, icterus and lipemia is laborious and has a very low reproducibility. However, assessment of hemolyis as well as of lipemia and icterus can be peformed automatically by modern clinical chemistry analyzers and many coagulation analyzers also have the HIL-capability.
Little standardization has been achieved so far based on HIL-testing: The comparability of different analyzers as well as on the comments of samples with conspicuous HIL-check results has been a matter of discussion. Unlike to test results, the results from HIL-testing are not reported for medical decision making but for rejection of samples only. Due to the high number of HIL-tests performed and the frequency of HIL-results above the threshold, only little day-to day variation is acceptable.
This talk will compare results from different IVD manufacturers and present different methods for internal and external quality controls of the HIL checks. Special discussion will be on certain L-results and the need for HIL-checks and further consistency checks particular in coagulation testing.
Keywords: preanalytics, HIL, internal quality control, external quality assessment

IS-004
DELTA CHECKS AND THE UNUSUAL AND ABNORMAL

Sedef Yenice
Gayrettepe Florence Nightingale Hospital, Istanbul

Delta check alerts have been used primarily as part of quality improvement in the clinical laboratory. In this regard, a delta check (DC) is defined as a patient based quality control (QC) tool that involves the comparison of consecutive laboratory test results for the same patient.
Delta checking can be used for multiple purposes, the most common of which include:
• Identifying cases of patient specimen misidentification
• Detecting other specimen-related issues - specimen contamination, inappropriate specimen handling, specimen interferences such as hemolysis and inappropriate anticoagulants or preservatives
• Disclosing examination (analytical) issues, including reagent problems, measurement procedure shifts or drifts, and inter-instrument differences (when more than one instrument is used for a measurand)
These are quality control issues that usually cannot be detected by traditional QC methods by means of testing quality control materials.
Also, a DC alert acts as the "sentinel" of an important change in patient status considering the discrepant laboratory results compromise patient care by leading to inappropriate diagnoses or treatment.
With the widespread use of autoverification, DCs have become an important component of the tools used to identify results that need additional review before release to the medical record. Laboratories should identify their particular needs in consideration of the purposes for DCs, the prevalence of mislabeled specimens, other specimen problems, and patient population. Then, programming the DC parameters into the LIS including the type of delta, DC limits, and the time window between results should be customized accordingly. Further, a process for investigating DC alerts and evaluating the performance of the DC procedure after implementation should be developed.
Keywords: Delta check, specimen misidentification, preanalytic errors, autoverification

IS-005
AUTOVERIFICATION: A BALANCING ACT?

Edward W Randell
Division of Clinical Biochemistry, Laboratory Medicine, Eastern Health Authority, St. John's, Newfoundland, Canada

The use of computer assisted patient data review to identify errors extends back to the mid 1960's and has continually developed to this day. Information on many parameters available within the electronic laboratory information system can be leveraged to assess both quality of samples and consistency of test results through software assisted auto-verification routines. Hence, auto-verification offers potential for gains in turn-around time and reduced time for manual test result verification. However, there are many different strategies towards auto-verification and each achieving significantly different gains in workflow efficiency and effectiveness in error detection. In this session we will show how thoughtful construction of auto-verification schemes have the potential to reduce time required for test review but balanced with refocusing of efforts on adding value through resolving unusual test results that may represent error, or through timely notification of pathological processes presenting immediate risk to the patient. This session addresses current practices in auto-verification of laboratory test results identifying benefits and remaining challenges, but emphasizes the importance of implementing auto-verification schemes backed with a continues improvement routines for optimized and customized solutions for the local laboratory and its unique patient populations. This involves a rebalancing of efforts from identification of unusual results to downstream actions aimed at resolving potential problems but with overall gains in process efficiency, quality, and patient safety.
Keywords: autoverification, laboratory error, process improvement, management, six sigma

IS-006
A ROADMAP FOR EFFECTIVE ORAL PRESENTATIONS

Merve Evren[1], Ferhan G. Sağın[2]
[1] Visuluma Scientific Visualization Ltd., Ege Teknopark, Bornova, İzmir
[2] Ege Üniversitesi Tıp Fakültesi, Tıbbi Biyokimya AD, İzmir

Successful scientific careers build upon clear, logical and effective delivery of ideas and scientific results. This interactive session will start with discussing the basic elements of any good scientific oral presentation-from journal clubs to short talks in conferences. Brief introduction to each topic and some basic guidelines for planning, preparation, practising and delivering of an effective talk will be introduced by the coordinators. Stages of a scientific talk, "what to do" and what not to do" for each stage will be discussed and exemplified with good practice examples. The session will use small group discussions and whole group discussion. The interactive format of the session will also include engaging learning activities by the use of short questions and some educational

technologies or elements of team-based learning. During the session, enough time for clarification about all phases of an effective presentation including dealing with the Q&A will be allocated. Additional resources (guidelines, checklists and other related printed material) will also be provided to participants.

IS-008
PATIENT BASED RISK ASSESMENT AND QC FREQUENCY: A NEW DATA-DRIVEN WAY TO SCHEDULE YOUR CONTROLS

Sten Westgard

IS-009
ARE MUTATIONS RANDOM?

Abdullah Tuli
Department of Medical Biochemistry, Faculty of Medicine, Çukurova University, Adana

Mutations can be caused by various chemical agents, high energy sources such as radiation and some pathological conditions that may cause cellular stress. While the mutations sometimes do not have any effect on the organism, they can cause both positive and negative effects, as in the malaria hypothesis. The best example of malaria hypothesis is the behavior of erythrocytes with sickle shape in the patient with sickle cell anemia.
In 1953, Watson and Crick hypothesized that DNA bases might be able to change their shape enabling mispairs to pass as the real thing. If we had to copy billions of letters from one sheet of paper to another, we would probably make few mistakes. Therefore, it will not surprise us that our DNA has made mistakes in copying our genome of 3 billion nucleotides. What is the excuse of our cells when the excuse of human mistakes is boredom or fatigue?
How do mutations bypass G-C and A-T matching defined by Watson-Crick geometry, an important proofreading of DNA replication? Why the DNA polymerase repair mechanism does not work? Al-Hashimi et al. have shown that Watson-Crick-like G-T mismatches occur, and this mismatch can occur in metabolism in short-term and short-lived manner due to similar hydrogen bonds as in the Watson-Crick G-C match. It has also been shown that the DNA polymerase repair mechanism can be overcome by the Watson-Crick-like binding of the anion and tautomeric forms of the formed G-T mismatches. It is suggested that incorrect mismatches may not be only during replication, but also during translation and transcription. Now, with these results, we are one step closer to understand that mutations may not be random.
Keywords: DNA, repair mechanism, mutation

IS-010
CANCERS AND miRNA

Pınar Uysal Onganer

IS-011
LIFE WITHOUT CANCER: UTOPIA OR REALITY?

Engin Ulukaya
Istinye University, Faculty of Medicine, Department of Clinical Biochemistry, Istanbul

Cancer is a disease that is also known as the plague of our age. Even though the plague has a curable simplicity, cancer does not have. In recent years it has been clearly shown that everyone has different cancer. For this reason, it is not right to administer the same treatment to everyone as happening in the case of plague. For this purpose, it is realistic to reveal/determine the molecular profile of the patient and give the treatment accordingly. As a matter of fact, different treatment results are obtained from patients with the same age, gender and demographic features in the same treatment groups. The reason of this is molecular differences, which is genotype. Therefore, the phenotypic evaluation is no longer sufficient. Because it can not show interpersonal differencies. That is why, the age of molecular oncology/precision oncology era has begun. Contemporarily, each patient will receive different treatments, thereby they will undoubtly have longer lifespan/survival rates. However, the molecular era will result in the questioning of the clinical trials-based drug development processes due to the nature (homogen patients groups necessity) of clinical trial studies. In this talk, the effects of life sciences researches (biochemistry, biology, genetics, pharmacogenetics, etc.) on molecular oncology will be examined.
Keywords: cancer, chemotherapy, genotype, survival, molecular era

IS-012
SUCCESSFUL EXAMPLES TO TRASCRIPTOMICS BASED STUDIES FOR PERSONALIZED TREATMENT AND DIAGNOSIS

Ali Osmay Güre
Bilkent University, Ankara

We have been able to identify various sub-groups independent of clinicopathological classifications for multiple cancer types. We showed, for 5 different tumor types, that such sub-groups can predict prognosis, response to therapy and distinct biological qualities for cancer. Biomarkers thus identified are especially useful as they can be quickly adapted for clinical use. As the methods for identifying transcriptomics based biomarkers are extremely diverse, the identified markers are likely to be novel and therefore suitable for patenting. In this talk, I will summarize our most recent findings by which we can distinguish novel subgroups for hematological and breast cancers, as well those by which we can foresee prognosis and response to therapy in colon and gastric cancers, and in melanoma, respectively. I will also show our findings by which we can predict sensitivity towards EGFR inhibitors in almost all tumors.
Keywords: biomarkers, bioinformatics, prognosis, drug resistance, transcriptmics

IS-013
A NEW GENERATION ASSAY FOR ISCHEMIA MODIFIED ALBUMIN TEST

Özcan Erel
AYBU. Med Fac. Medical Biochem Dept. & Ankara Ataturk Training and Research Hospital, Ankara

OBJECTIVES: N-Terminal end of serum albumin binds cobalt, nickel and copper ions at physiological conditions. However, in the presence of oxidative stress, hypoxia, acidosis and free-radical damage the binding capacity decreases and the levels change in various diseases. Original, conventional and commercial ischemia modified albumin (IMA) measurement methods and kits have serious defects. In the study, it is aimed to develop a superb measurement method which can be used by spectrophotometer and automated analyzers.
MATERIALS and METHODS: The assay has three reaction steps. At the first step, apotransferrines are completely saturated with iron atoms. In the second step, cobalt ions are added to the sample. In the last step, the remaining cobalt ions are bound to chromogen. The assay is calibrated directly using a developed calibrator.
RESULTS: Orginal, conventional colorimetric IMA assays and commercial kits are interfered with apotransferrin molecules. In the assay, this false positive interference was removed. In the conventional method, the pH value of the reaction medium was unstabilize status and in the new assay the hydrogen concentration of the reaction medium was stabilized. In the original and conventional methods, the results are given as absorbance in the form of AU, ABSU, in the new method the results are given as SI unit.
CONCLUSION: The developed method/kit, that has different assay principle, new reagents, novel chromogen and original calibrator/calibration process, has good analytical performance characteristics and the assay can be used for accurately measurement of serum IMA level. *Granted by TUBİTAK (117S455)
Keywords: Ischemia modified albumin, IMA, cobalt

IS-014
VARIOUS METABOLIC EFFECTS OF NATURAL-UNNATURAL SUGARS

Hakan Boyunağa
Kırıkkale University, Medical Faculty, Medical Biochemistry Department, Kırıkkale

Main carbohydrates that human intakes via diet are starch, a glucose polymer, sucrose which is produced from beet and sugarcane, lactose that is taken within milk and milky foods, sucrose found in fruits and vegetables, glucose and fructose.
Sucrose which is found in either sugarcane or beet is digested in disaccharide form and its inclusion into the general metabolism in monomer form may take some time course.
In corn-syrup, glucose and fructose are found in their monomer forms and its high fructose content may give rise a metabolic chaosby rapidly flowinf into the liver and pancreas. Additionally, there are also studies reporting that this phenomenon may cause higher incidences in same pathologies.
In recent fifty years, many chemical artificial sweeteners that only gives a sense of taste and has no nutritional effect have been added to the commercial drug systems. These products which are excreted without metabolizing in the organism have been reported as damaging for health in many researches and are recommended not to be consumed in especially childhood period and during pregrancy. Nevertheless, these chemicals may easily appear in market shelves of chewing-gums, chocolate, cakes, gaseous drinks which especially attract the kids attention.
In my presentation, I am going to talk about the metabolism of natural carbohydrates consumed with fruits, vegetables and floury foods and then discuss the harmful metabolic effects of artificial sweeteners and corn-syrup based sugars

which are used in almost ready-to-eat foods.
Keywords: Natural sugars, artifical sweeteners, fructose syrup, metabolism

IS-015
CURRENT APPROACHES TO PRENATAL SCREENING TESTS

Ercan Saruhan
Department of Medical Biochemistry, Faculty of Medicine, Muğla Sıtkı Koçman University, Muğla

Screening is the systematic application of a test to identify asymptomatic individuals at high risk for a serious illness. In this way, early diagnosis and treatment of the disease can be performed. The screening test should be cost-effective, simple and safe, easily accessible, and have good performance. Prenatal screening tests are biochemical tests used for early detection of fetal anomalies. In the late 1970s, only two programs were used for prenatal screening and diagnostic purposes. These were maternal serum alpha fetoprotein (MSAFP) elevation and maternal age of 35 or higher for neural tube defects (NTD) and Down syndrome (DS). Today, after more than 45 years, clinicians offer many prenatal diagnostic options and even in utero treatment options for the evaluation of fetal anomalies through genomic discoveries and advances. Because many of the congenital anomalies have fatal consequences, early detection of these anomalies presents the necessary treatment options for the mother and fetus during pregnancy. The purpose of this lecture is to evaluate the current developments in prenatal screening tests with developing technology, to discuss the benefits, correctness and limitations of genetic testing with routine biochemical screening tests and to determine the effects of these tests on genetic or fetal anomalies.
Keywords: prenatal screening, down syndrome, combined test

IS-016
DIGITAL PCR AND APPLICATIONS

Müslüm Akgöz
TUBITAK National Metrology Institute, Bioanalysis Laboratory, Gebze, Kocaeli

OBJECTIVES: The TÜBİTAK National Metrology Institute (UME) is a member of the International Bureau of Weights and Measures (BIPM). The aim of the Bioanalysis Laboratory is to develop primary measurement methods in the field of biometrology and life sciences, to give primary level measurement service, to produce certified reference materials and to carry out proficiency testing needed especially in our country. The aim of this study is to describe newly developed measurement methods with digital PCR (dPCR: Digital Polymerase Chain Reaction) instrument which is a new technology product.
MATERIAL-METHODS: Digital PCR instruments enables the calculation of DNA amount with the help of statistics by dividing single tube reaction to thousands to millions of smaller partitions.
RESULTS: In digital PCR method, the copy number concentration of DNA is determined without using a certified reference material and it is considered as the reference DNA measurements method. Additionally, since calibration graph is not used, new measurement methods have much higher accuracy and lower uncertainty than Real Time PCR methods. As personalized medicine applications has increased, the dPCR device has also been widely used clinically in the screening of genetic variants and additionally in the detection of bacteria and viruses. In this presentation, examples of research and development studies conducted in Bioanalysis Laboratory with dPCR method will be summarized.
CONCLUSION: In our country, the quality of the clinical measurements can be increased with the widespread use of dPCR in laboratory medicine.
Keywords: Dijital PCR, DNA copy number, laboratory medicine, genetic variation, bacteria, virus

IS-017
LEADERSHIP IN CLINICAL LABORATORY MANAGEMENT

Sedef Yenice

IS-018
CURRENT INSIGHTS INTO HEMOSTASIS TESTING

Adnan Haşimi
Private Laboratory: Viromed, İstanbul

Hemostasis tests are found in the group of tests that are relatively new and less relevant to routine clinical biochemistry laboratories. In addition to the diagnosis and follow-up of patients with hemorrhage / bleeding risk, information and experiences related to these tests, which are guiding before invasive medical procedures and which can be decisive about the applicability of these procedures, will be shared in this session.
In this presentation, some clues about routine haemostasis screening tests will be discussed.
Keywords: Hemostasis testing, Hemostasis screening tests, PTZ, aPTT, Fibrinogen

IS-019
NEWLY DISCOVERED EFFECTS OF VITAMIN K BEYOND COAGULATION SYSTEM: IN RELATION WITH AGING

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Vitamin K dependent-proteins (VKDP)(Gla-proteins) have unique gamma-carboxyglutamic acid residues in their structure due to vitamin K. The well-known VKDPs are prothrombin, factors VII, IX, X, and protein C and protein S. Warfarin interrupts vitamin K recycling and inhibits coagulation. Beyond coagulation, newly discovered VKDPs have a variety of physiologic roles and are not synthesized in the liver. Some of VKDPs are osteocalcin, Matrix Gla-Protein (MGP), Gla-Rich Protein, Periostin, Transthyretin, Proline-Rich Gla-Protein, Growth Arrest-Specific 6 (Gas6), and Transmembrane Gla-protein. Osteocalcin has a role in the regulation of mineralization of bones. MGP and Gas6 function to protect the vasculature. Gas6 knockout mice are resistant to venous-thromboembolism. Gas6 affects vascular smooth muscle cell apoptosis and movement. Osteocalcin, MGP, periostin, Gas6 and others support the regulation of calcium homeostasis, calcification of cartridge and vessel walls, mineralization of bone, and tissue regeneration. Hip fractures are less common where Natto, a Japanese food high in vitamin K, consumption is higher. Menakinon-4 has been used in prophylaxis and treatment of osteoporosis in Japan since 1995. Calcification of arteries is common for people over 60 years old, which increases mortality rates by facilitating complications such as aortic stenosis, hypertension, ischemic heart diseases and heart failure. MGP is a powerful inhibitor of calcification of bones and vessel walls. Mutations of MGP cause Keutel syndrome in human. Vitamin K may have therapeutic potential for aging and age-associated disorders to protect from cardiovascular disease, chronic kidney disease, and insulin resistance. Comprehensive studies are needed to understand the role of vitamin K.
Keywords: Growth Arrest-Specific 6, Matrix Gla-Protein, Periostin, Vitamin K

IS-020
CAN IMMUNE AGING BE PREVENTED?

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Immune system is a complex and integrated network of cells and organs that defends against pathogenic microorganisms and guards against the development of cancer.The ability of the immune system to prevent infection and disease is strongly influenced by nutritional status of the host.Because nutritional status can modulate the actions of the immune system, the sciences of nutrition and immunology are tightly linked. In fact, malnutrition is the most common cause of immunodeficiency in the world. Poor overall nutrition can lead to inadequate intake of energy and macronutrient as well as selected micronutrient deficiencies. These nutrient deficiencies can cause immunosuppression and dysregulation of immune responses. On the other hand, the immune nutrients just not used to strengthen the immune system. At the same time, they regulate cellular senescence in immune system and whole body. The cellular aging or senescence is completely related cellular telomere length. There are a lot of report about relative telomeric length of immune cells and the other cell types in different diseases, especially autoimmune and inflammatory diseases. Telomere shortening is associated with aging, mortality and aging-related diseases. In vitro studies have shown that telomeres are highly susceptible to oxidative stress and oxidative stress -mediated DNA damage is an important determinant of telomere shortening. Each of immune activation causes oxidative stress in the body. And, oxidative stress strongly activates telomere shortening. Recent research by Ornish et al. has demonstrated increased telomere length and telomerase activity with lifestyle modification. Change of nutrition type is a good example of lifestyle modification, and this modification changes individual immune signature. Immune nutrients, some natural and fermented food products change our immune signature from bad to good.
Keywords: Immune aging, inflammation, immune nutrients

IS-021
GENETIC HETEROGENEITY AND MOLECULAR DIAGNOSIS OF HbH DISEASE

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Alpha thalassemia is a common genetic disorder that is characterized by deficient or absent synthesis of α-globin chains of the hemoglobin molecule. The human α-globin gene cluster has two α genes (α2 and α1) on each chromosome 16. A normal person has four functional α-globin genes and is designated as αα/αα. Most α-thal determinants are deletions involving one (α-thal-2: -α/αα) or both (α-thal-1: --/αα) globin genes on one chromosome. Six α-thal-2 and more than 20 α-thal-1 determinants have been reported worldwide. An individual with three α genes (-α/αα) is not anemic but a heterozygote who inherits two functional α-globin genes (--/αα) has mild hypochromic microcytic anemia. Combinations of α-thal-1 and α-thal-2 determinants cause HbH (β4) disease. A patient who inherited a

single α-globin gene (--/-α) has HbH disease with a chronic hemolytic anemia. Nondeletional α-thal results from point mutations involving the predominantly expressed α2 gene (αTα) or rarely the α1 gene (ααT). Forty-four nondeletional α-thal determinants reported worldwide. Homozygosity for the PolyA mutations (PA1:AATAAA→ AATAAG or PA2:AATAAA→AATGAA) in the PolyA signal site of α2-globin genes (αTα/αTα) cause HbH disease. Furthermore, combination of nondeletional α-thal mutations (αTα or ααT) with one of the deletional α-thal-1 determinants (--/αα) also result in HbH disease (--/αTα or --/ααT). Five different deletions [α-thal-1 (MEDI: -17.4kb, MEDII: -26.5kb and -20.5kb) and α-thal-2 (-3.7kb and -4.2kb)], two different Poly A mutations (PA1 and PA2), 5nt deletion on the α2-globin gene and a point mutation (Codon 59) on the α1-globin gene were reported in Turkey. As a result four different genotypes (--/--α, --/αTα or --/ααT, αTα/αTα) of HbH disease were detected in the Southern Turkey.
Keywords: Alpha thalassemia, HbH, PolyA

IS-022
THE EFFECT OF PERCHLORATE EXPOSURE ON LACTATING WOMEN AND ITS ASSOCIATION WITH NEWBORN THYROID HEALTH

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Iodine is used for thyroid hormone production and, necessary for the regulation of metabolic activities in the cells and normal development. In order to produce thyroid hormones, iodine is taken up by the gland via Sodium/Iodine Symporter (NIS)Iodine transport by NIS is inhibited by environmental chemicals such as perchlorate, nitrate and thiocyanate. Prolonged inhibition of iodine intake in the thyroid gland causes a decrease in thyroid hormone production and consequently leads to hypothyroidism. Since the source of NIS inhibitors is very diverse, exposure to these inhibitors is observed worldwide. In particular, sensitive populations are thought to be more affected by NIS inhibitor exposure. Therefore, the effect of maternal NIS inhibitor exposure on both maternal and newborn thyroid function was investigated. In the study, spot urine samples of 185 mothers in lactation period were collected and urinary perchlorate, nitrate and thiocyanate levels were determined. Samples were collected from the same mothers in the first 48 hours after delivery. Thyroid hormones and thyroid-related antibodies were examined in maternal blood and perchlorate levels in colostrum samples were determined. Newborn TSH levels were determined from heel-prick test. It was determined that the exposure of NIS inhibitors was quite high in lactating mothers. In addition, the high rate of exposure (> 75%) to each of the 3 NIS inhibitors was correlated with the newborn TSH levels ($r = 0.21$, $p < 0.001$). A significant correlation was found between colostrum perchlorate level and maternal TSH ($r = 0.32$, $p < 0.001$). As a result, NIS inhibitors are ubiquitous in lactating women in Turkey and are associated with increased TSH levels in newborns.
Keywords: NIS Inhibitors, perchlorate, nitrate, thiocyanate, thyroid hormones

IS-023
EFFECTS OF HEAVY METALS AND ENVIRONMENTAL CHEMICALS ON ENDOCRINE FUNCTION AND HEALTH

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As the population grows and industry develops, chemicals from agricultural pesticides, packaging and industrial products are inevitably exposed in our daily lives. Polycyclic aromatic hydrocarbons, polychlorinated/polybrominated biphenyl compounds, triclosan, fluoride, perchloric acid, thiocyanates and also heavy metals which are found in abundance in the city air are the chemicals, our bodies are exposed in daily life other than occupational exposure. Due to the similarity of the structures, even at low doses, our endocrine system behaves chemicals like hormones, resulting in endocrine dysfunctions, autoimmune disorders and multiple organ damage. Moreover, most of the environmental chemicals are considered to be possible carcinogens.Because of their bioaccumulation properties and long half-lives, as well as their ability to pass through breast milk and placenta, they compose a serious public health problem. With the increased use of heavy metals in industry, agriculture and technology, they are found in abundance in the environment. As a result, toxic heavy metal exposures have begun to appear. Since their toxicities are high, arsenic, cadmium, chromium, lead and mercury exposure, is particularly important for occupational diseases and public health. Since lead exposure, especially in the prenatal and early childhood years, has been shown to lead to persistent brain damage, low IQ, concentration problems and criminal behaviours in later years, developed countries have begun to conduct screening programmes in preschool children. Mercury exposure, develops with with contaminated fish and seafood, agricultural waste, amalgam dental fillings. Arsenic exposure results from insecticides, drinking water, soil products and some wines produced from grapes growing on high arsenic containing soil. As a result of environmental chemical exposure low IQ, diminished visual memory, attention deficits, and motor dysfunction may develop. Early-age malignant tumors are encountered.
Keywords: environmental chemicals, heavy metals, endocrine function

IS-024
LABORATORY IN THE DETECTION OF CHEMICAL WEAPONS AND QUALITY CONTROL STUDIES

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OBJECTIVES: Chemical weapons (CW), sometimes referred to as weapons of mass destruction, may lead to overwhelming, especially in hospitals, and may require the health personnel to have detailed and limited medical interventions. Therefore, exposure risks of persons to these substances are important both for diagnosis of injuries, effectiveness of treatment and the protection of other human beings and other living things.
MATERIALS and METHODS: CW detection is possible by portable detectors, early warning systems and analytical laboratories and the effective diagnostic communication network. In advanced laboratories, especially GC-MS and LC-MS are used for the detection of these agents. Research on the recognition of chemical weapons by the Organization for the Prohibition of Chemical Weapons (OPCW) is being carried out by proficiency tests conducted with the participation of member laboratories around the world.
RESULTS: Within the scope of the external quality control program we are involved in; The preprocesses made to the samples prepared in the reference laboratory of OPCW in the laboratory phase differ according to the matrix in which the material is contained. Advanced processes such as liquid-liquid extraction, solid phase extraction, and derivation are applied and advanced technological methods such as spectrophotometer, electrochemical sensors, chromatographic methods are used.
CONCLUSION: Our department participated since 2015, has recently participated in CWC (Chemical Analysis competency testing, (CCACT-05)), in which 10 participants participated in the last session, and only 6 participants were able to identify all the items positive results have not been given and our studies will continue with limited capabilities.
Keywords: Chemical Weapons, Laboratory, Proficiency Tests, CBRN

IS-025
ENDOCRINE DISRUPTING CHEMICALS - RESEARCH DATA

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IS-026
BIOCHEMICAL APPROACH TO ENDOCRINE DISRUPTORS

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Life as we know it greatly depends on enzymatic activities. The importance of catalytic activity is directed environmental factors. Every day the number and kind of the numerous biochemical, biological and toxigenic, mutagenic, carcinogenic content is increasing in our environment. Endocrine disruptors are one of the key molecules that may affect the endocrine system, metabolism and enzyme activities in various ways. Endocrine disruptors or their metabolites can act like hormones. These molecules may interfere with the endocrine system and produce an undesired physiological and biochemical reactions at high and low doses ‘the dose makes the poison’. Endocrine disruptors may affect the metabolism, various ways, such as they may mimic hormones, stimulators, and blockers or inhibit many metabolic pathways or affect enzyme activities, regulate sexual development and reproductive function and growth. These molecules are structurally diverse compounds and they can be classified under various groups; industrial pollutants, waste products, pesticides, herbicides, fungicides, polyaromatic compounds, organic compounds, surfactants, drugs, metals, consumer products, plastics, and natural occurring molecules. The pentose phosphate pathway is required for synthesis of the nucleotide precursor Ribose -5 phosphate and reduction of nicotinamide adenine dinucleotide phosphate, which is very important for lipid synthesis and cell survival under oxidative stress. The aim of the present study was to investigate the effects of various EDs at different concentrations on the activities of enzymes related with pentose phosphate pathway and glutathione-dependent metabolism.
Keywords: Endocrine distruptors, enzyme activity, pentose phosphate pathway

IS-027
BENEFITS OF EXTERNAL QUALITY ASSESSMENT PROGRAMME RESULTS FOR COUNTRY TERMS

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Laboratory testing plays a crucial role in the detection, diagnosis, treatment of diseases. Even reforms in heatlh care focus on diagnosis and early intervention, timely accurate and reliable lab results are vital for patient treatment and follow-up. Internal and external quality control samples have to be run in order to provide reliable laboratory results.
Medical laboratories can participate either national or international EQA

programme. An international External Quality Control Programme provides more reliable results due to high number of participants. Participation to an External Quality Assesment Programme has become mandatory for certain tests after updates to the "Medical Laboratory Regulation" in our country. Laboratories participate in external quality control evaluation programs accordingly and record the results. Evaluating the reports and conducting necessary regulatory preventive actions; is a guide in the monitoring and solution of the problems experienced in the possible preanalytical, analytical and post analytical phases. In the case of the determination of the country limits for medical laboratory tests, external quality control programmes, regardless of the laboratory in which the test is performed, make the results compatible with the same device and method group. By determining the limit of the country; the use of these criteria in the international external quality control reports and the evaluation of the reports according to the country limits; international external quality control becomes an important tool for laboratory performance assessment, both nationally and internationally.
Keywords: External quality assesment, international EQA, country limits

IS-028
EVALUATION OF THE IMPLEMENTATION OF EURA1C 2016 AND EURA1C 2017 TRIALS IN TURKEY

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OBJECTIVES: In this presentation, information about the practices and results of the EurA1c 2016 and 2017 Trials (EQA/PT) studies in Turkey which was organized in coordination with the IFCC C-EUBD in order to assess the standardization status of HbA1c measurements made in clinical laboratories in Europe.
MATERIALS and METHODS: EurA1c EQA/PT programs in Turkey were organized by Pamukkale University Faculty of Medicine and TUBITAK UME. Clinical laboratories performing HbA1c measurement in Turkey were invited to participate to these studies. Fresh whole blood and lyophilized hemolysates specimens manufactured from the same pool were used. Participating laboratories were asked to measure HbA1c level of the samples and report the results to the coordinator no later than the specified deadline in the study protocol.
RESULTS: Participants HbA1c measurement results were statistically evaluated. Results of the clinical laboratories in Turkey have been compared with the measurement results of the participating laboratories in the European countries. In the EurA1c 2016 Trials, in fresh whole blood samples, the bias was found as 0.0 mmol/mol (0.0%), the between-laboratory CV (BLCV) was 7.2% (4.8%), and in lyophilized hemolysates bias was - 0.2 mmol/ mol (-0.02%), BLCV was 5.2% (3.5%) in Turkey. The results are given in the IFCC and NGSP units as the mean value of the two different level samples.
CONCLUSIONS: Clinical laboratories in Turkey have been participated in Eura1c 2016 and 2017 Trials. Participation to an international program such as the EurA1c Trials will contribute to improving of the quality of HbA1c measurements in Turkey.
Keywords: HbA1c, fresh whole blood, lyophilized hemolysates, external quality assessment

IS-029
THE RESULTS OF EURA1C 2016 AND 2017 TRIALS AND THE STATUS OF TURKEY

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OBJECTIVES: Assessment of status of Turkey according to the results of the EurA1c2016 and EurA1c2017 Trials organized by the IFCC Committee on Education and Use of Biomarkers in Diabetes (IFCC C-EUBD).
MATERIALS-METHODS: Approximately, 17, 18 countries; 2166, 2647 laboratories; and 18, 15 manufacturers participated in the 2016 and 2017 Trials, respectively. 50 laboratories from Turkey participated to each trial. The National Metrology Institute of the Scientific and Technological Research Council of Turkey (TÜBİTAK-NMI) served as the External Quality Assessment (EQA) Organizer, and sponsored the budget. Diler Aslan, the corresponding member of the IFCC C-EUBD, served as coordinator. TÜBİTAK-NMI invited medical laboratories by writing to the relevant departments of the Turkish Ministry of Health (MoH). The Department of Public Health (PH) Laboratories sent the formal invitations to the PH Laboratories throughout Turkey. The IFCC C-EUBD provided the fresh whole blood (WB) and the lyophilized hemolizates (LH). Countries and the manufacturers were evaluated according to the IFCC Model for Quality Targets.
RESULTS: The performance of Turkey, and the results from Roche and TOSOH G8 measurements were found around or below 2 sigma. In the fresh WB and LH comparisons is the tenth among ten, and the eight among eleven countries, respectively. The results of the EURA1c2016 Trial are published (doi:10.1373/clinchem.2018.288795).
CONCLUSIONS: The results show that the analytical performances of the HbA1c assays between laboratories in Turkey should be improved. The MoH, kit manufacturers and medical laboratories should assess their roles together. TÜBİTAK-UME can be EQA organizer in such studies.
Keywords: Analytical performance, HbA1c, Standardization, Interlaboratory comparison

IS-030
AIRWAY MUCINS AS PROGNOSTIC/DIAGNOSTIC MARKER AND THERAPEUTIC TARGET

Mehmet Kesimer

IS-031
POWER OF GENOME EDITING IN PROTEIN FUNCTION ANALYSIS

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Applications of novel technologies in the fields of basic and clinical biochemistry provide high-precision "big data" that pave the way to the discovery of novel therapy targets besides the leading role in basic research and biomarker discovery. Following a major impact in basic biochemistry, these leading high-throughput protein technologies also initiated a paradigm change in clinical biochemistry studies. Today, high-throughput data-generated-hypotheses are more likely to result in a high-impact success-story rather than a research based on a targeted hypothesis. Genome editing and specially the Crispr/Cas technology that was introduced in recent years provide the opportunity to create a targeted change in the genome of an organism that provide an invaluable tool to create transgenic cell lines as well as animals. Targeted genome editing creates opportunities to complement the functional genomics data with high-throughput proteomics. Genome editing approaches lead the way towards the development and implementations of several protein engineering approaches. The current focus of the project team is using descriptive genomics data to understand several biological events that initiate and lead to skeletal muscle degeneration. Towards this aim, the team is merging data obtained from functional genomics studies with high-precision proteomics analyzes to elucidate minute interactions as well as attributing new functions to key proteins. Protein engineering via genome editing also aid to circumvent antibody dependencies by genome modulations. The panel talk majorly focuses on the examples of genome editing towards descriptive proteomics and discusses the complementary approach for the merging of genomics and proteomics data.
Keywords: Genomics, proteomics, genome editing, Crispr/Cas, Integrative data analysis

IS-032
PROTEOMICS APPLICATIONS TECHNOLOGIES IN BASIC RESEARCH

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Proteomic technologies have been widely used in the investigation of intracellular and extracellular biochemical processes. Proteomic analyses are complementary to genomic assays where data are collected at many different levels: post-translational modifications, protein-protein interactions, protein structures. Especially, the newly developed quantitative proteomic applications are able to analyse the biochemical dynamics at all these levels in a time dependent manner. Thus, unbiased new hypotheses can be proposed during the investigation of molecular mechanisms of cellular functions and systematic comparison of patient-healthy samples can be made. The descriptive resolution of new technologies in proteome technologies and basic protein chemistry studies will be discussed, the basic requirements for proteomics analysis will be explained from the cell biology and protein biochemistry perspective. Large-scale and comprehensive proteome analysis applications will be given with practical examples.
Keywords: proteomics, cell biology, phospholaylation, protein-protein interaction

IS-033
PROTEOMICS APPLICATIONS AND ITS DIFFICULTIES IN CLINICAL SETTINGS

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Proteomics is defined as the large-scale study of the structures and functions of proteins. The aim of clinical proteomics is the improvement of clinical care. Clinical proteomics is seen as a tool that develops an understanding of the molecular mechanisms of a disease and determines the best medical care for the diagnosis and/or treatment. Advances in mass spectrometry have led to the development of proteomic techniques and their adaptation to the clinic. Especially in recent years, complex biological fluids, tissues and cells can be analyzed with high sensitivity and precision in almost a few hours. All these advances in mass spectrometry based proteomics approaches are believed to contribute to the discovery of new biomarkers for the detection, treatment and prognosis of diseases. However,

in biomedical research, there are important factors that need to be considered when understanding the basic mechanism of a disease and transferring it to patient care. Although proteomics has made a significant progress in recent years, it is important to ensure that the differences in the findings observed in independent laboratories are caused by different biological conditions but not the variability of the proteomics workflow. Therefore, obtaining the same data in independent laboratories, reducing the technological variability between the proteomic platforms used and determining/standardizing the universally accepted metrics will enable the transfer of proteomics to the patient care. Generally, when immunoassays are insufficient, mass spectrometry-based proteomic approaches are particularly important. In the next future of clinical proteomics, protein biomarkers and panels are planned to be analyzed using clinical routine analyzers. Automatic and routine use of these clinical proteomics-based tests in the future will enable a personalized approach to medicine.
Keywords: clinical proteomics, mass Spectrometry, standardization

IS-034
DATA INTEGRATION AND NETWORK MODELING TECHNIQUES IN PROTEOMICS

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One of the most important goals in cancer research is to reveal the mechanistic details of the different responses to the same treatment of different tumors. In addition, identification of tumor-specific clinically important common biomarkers and biological pathways is crucial for refining the treatment strategies in cancer. There are many methods for the analysis of each type of omic data type. However, the known biological pathways are incomplete in representing these data and signalling networks in cancer. As individual treatment methods require detailed information of cancer signalling networks beyond the list of protein, it is important to integrate different omic data with protein interaction networks and to reconstruct signalling networks in a biologically meaningful manner. The application of reverse engineering methods on multiple omic data gives a wider perspective in the analysis of this data and allows the identification of the hidden target proteins. Here, I will present Omics Integrator software that reconstructs biological pathways by integrating various proteomics data with the interactome data. Next, I will discuss how the network-based approaches can reveal patient-specific pathways and targets and show some examples of application of this strategy. One of these examples is the patient-specific networks reconstructed with Omics Integrator using the proteomic data derived from Glioblastoma patients which is the most aggressive type of brain tumors. As a result, many patient specific target proteins are found and the results are experimentally validated.
Keywords: data integration, patient specific modeling, network modeling

IS-037
RATIONAL USE OF MEDICAL LABORATORY IN PEDIATRICS

Rukiye Eker

IS-038
RATIONAL TEST UTILIZATION

Suat Hayri Küçük

IS-039
REFLEX TEST AND REFLECTIVE TEST IN PRACTICE, REPORT FORMAT AND INTERPRETATION

Muhittin A. Serdar

IS-040
AUTOVERIFICATION PROGRAMS FOR MEDICAL LABORATORIES

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In medical laboratories, everyday a huge number of different samples are analyzed and test results are verified manually which increase the turnaround time (TAT) and post-analytical errors. To overcome this problems, rule-based autoverification programs have been developed and being widely used in modern laboratories.
Autoverificans programs evaluate test results using logical algorithms developed by experts. While clinical biochemists use a few criteria to verify test results, these programs follow test specific protocols and in some cases use a very complex algorithms to verify test results. Furthermore these programs give priority to quality control (QC) results which increase the reliability of patients' data.
Although the autoverification programs are commonly used in laboratory medicine, the main components and numbers of algorithms, criteria and verification limits have not been standardized. The criteria used in autoverification protocols should be based on sample and test types, clinical information and appropriate statistical techniques. Currently, most laboratories use some common criteria such as sample types, QC results, cut-of points, reference intervals, and clinical data and so on. Whatever protocols are followed, all verification criteria should be monitored and approved by clinical biochemist.
Currently autoverification programs are used in clinical chemistry, endocrinology, hematology, coagulation and even in microbiology laboratories. Despite all these benefits some inexperienced laboratories are afraid to use these programs. They suggest that manual verification is safer than verification process performed by computers. However, in the literature there is no reliable data to support or confirm such thesis.
Autoverification programs are cost effective and can be easily implemented to any types of medical laboratories. They decrease TAT, manual intervention, post-analytical errors and increase patients' safety significantly.
Keywords: Autoverification, patient safety, post-exemination error,

IS-041
THE RATIONAL USE OF MEDICAL LABORATORY PROJECT:CONSULTATION PROCEDURE BETWEEN CLINICS AND LABORATORY

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The report on the "Improving Diagnosis in Health Care" published by the Institute of Health in 2015 highlighted that "diagnostic errors cause patient harm and that improvement in the diagnostic process requires better collaboration among physicians and laboratory professionals". The test menu in the clinical laboratory has increased dramatically in size, cost, and complexity day by day. Medical laboratory specialist should play an active role in the selection and interpretation of the most appropriate and cost effective tests that will contribute to the diagnosis, treatment and monitoring of the patients. It should be kept in mind that the clinical laboratory consultation is the best solution for this purpose. 'Rational Laboratory Use Consultation Procedure' was prepared within the scope of Rational Laboratory Use Project, initiated by the Ministry of Health, General Directorate of Health Services, Examination and Diagnosis Services Directorate. The procedure covers all clinicians and laboratory specialists and includes the steps of all consultation works and procedures (between physician-laboratory, laboratory-physician and laboratory-laboratory consultations).
Keywords: Medical laboratories, rational laboratory use, consultation

IS-042
RATIONAL USE OF MEDICAL LABORATORY: DECISION LIMITS, CRITICAL VALUES AND HARMONISATION OF MEASUREMEN

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The Rational Use of Medical Laboratory was a project which has been prepared by the Department of Laboratory Services, the Ministry of Health. Many specialists from different regions of Turkey have contributed to the Project. One of the goals of the Project was harmonisation of decision limits, critical values and measurement units for all medical laboratories – Medical Biochemistry, Medical Microbiology, and Medical Pathology - in the entire Turkey. Critical decision limits for fasting plasma glucose (for hypoglycemia, prediabetes and diabetes), interpretation of postprandial glucose, glucose challenge for gestational diabetes and oral glucose tolerance test; for HbA1c and plasma lipids (total cholesterol, HDL- and LDL-cholesterol, and triglycerides) were determined. The critical values for some chemistry (ammonia, bilirubin, calcium, creatinine, creatine kinase, glucose, magnesium, osmolality, phosphorus, blood gases, potassium and sodium, ethanol, salicylate and digoxin), hematology (blood smear, leukocyte, neutrophil and platelet counts, hemoglobin), and hemostasis (APTT, PT, and fibrinogen) tests were established. In the context of harmonisation of units, change to Liter as the denominator, change to g/L and mg/L for proteins and reporting of results with whole numbers for some tests such as troponin.
Keywords: decision limit, critical value, harmonisation

IS-043
INFORMATION TECHNOLOGY, HIMS/LIMS, IN RATIONAL USE OF CLINICAL LABORATORY

Ali Özen Akyürek

IS-044
INFORMATION TECHNOLOGY, HIMS/LIMS, IN RATIONAL USE OF CLINICAL LABORATORY

Ziya Bolgönül

IS-045
COMMUNICATION, NETWORKING AND SOCIAL MEDIA USAGE IN SCIENTIFIC CAREERS

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Scientific career requires deliberate choices and carefully planned steps starting from postgraduate. Ability for optimum social & scientific communication and interaction is as important as the necessary scientific and professional knowledge and skills. Although over the past decades, almost all of the acquaintances were established by face-to-face contacts, today new generation means of communication take over. However, the importance of voluntary participation in different scientific settings are still of great importance.
More than eight million researchers can interact with a variety of online platforms using the next generation of information tools changing the communication and the interaction as well as career planning strategies. This change has resulted in emergence of social media environments like LinkedIn and ResearchGate, publishing tools like BioRxiv and F1000, project management systems like Quip or Trello, and data sharing tools like Kudos and Slideshare.
In this next generation interaction models, researchers are expected to have digital identities. Researchers exhibit their achievements and skills, ask questions and obtain answers, engage for their careers and apply jobs via these identities. Researchers' creation and up-dating of digital identities is becoming a necessity, and the use of these tools should be taught as part of the postgraduate education. In this session, classical and up-to-date communication and networking tools that can be applied starting from the post-graduation period will be discussed in an interactive manner. Activities such as producing digital identity and digital portfolio will be exemplified for effective use of social media in participant's scientific career.
Keywords: communication, career planning, networking, social media, digital tools

IS-046
DATA COLLECTION AND PROCESSING IN CLINICAL LABORATORY MANAGEMENT

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Nowadays, laboratories are in large pools of data. However, available tools are not sufficient enough to extract information from data. As laboratories have been transformed into production plants with volume-based approach, data-driven process management is required not to omit patient safety despite increasing workload.
Every log related to processes or errors belonging to daily workflow is considered as essential data. In cases of proper entry of data and storage in accessible forms, datasets can be investigated to extract new information for management. Recent systems lack some features such as access to data, processing of data, sharing of data, real-time data analysis and presentation. As managerial decisions has to rely on information extracted from laboratory data, one of the most important skills for laboratory management is data-centric mindset.
Business intelligence (BI) can be defined as solutions providing/facilitating to reach strategic targets, increase efficiency, improve patient-clinician satisfaction and full compliance to legal regulations. New decision-making mechanisms can be plotted with business intelligence softwares. Examples of topics that be affected by BI due to acceleration in decision making processes can be given as reduction of costs, improvement of patient outcomes, reaching service quality targets, monitoring functional/dynamic structure of organization and determining required changes for the future.
Features of BI softwares such as specificity to laboratory, user-friendliness, convenience of establishment and maintenance, adaptability, cost-efficiency has to be evaluated by laboratory specialists thoroughly for functional/useful BI.
Data collection and processing improves managerial insight of laboratory specialists. Data-driven managerial approach can be realized with technological innovations.
Keywords: laboratory management data-driven approach, business intelligence, information technologies

IS-047
AUTOVERIFICATION APPLICATION IN LABORATORY PRACTICE

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The laboratory plays a central role in health care. By one estimate 70% of all medical decisions are based on laboratory results. However clinical laboratories must respond to challenges such as extending test panels, increasing specimen numbers, quality expectation, decreasing turnaround time. Information technologies which have an increasing value in the last decade for clinical laboratories may be the solution to these challenges.
Autoverification is the process of evaluating and validating laboratory results using predefined computer-based algorithms without human interaction. Autoverification systems have been using for nearly 20 years. Today laboratories are using autoverification in many fields such as clinical chemistry analysis, immunoassay tests, urine analysis, hematology tests, coagulation, immunology, and blood gas testing. Current autoverification systems are using mostly rule-based approach for implementation. These rules are generally defined as "If... Then...". These rules should cover all information from preanalytical, analytical and postanalytical phases.
By using autoverification, all reports are validated according to the standard evaluation criteria and the number of reports per laboratory specialist is reduced. This allows the specialist to spend more time examining results that require special attention. Although there is a nearly 20-year history of autoverification systems, usage of these systems is relatively new in our country. Further studies for defining rules are required to increase the efficiency and reliability of autoverification systems.
Keywords: Autoverification, report verification, clinical laboratory

IS-048
APPROACH TO DATA MINING BY CLINICAL LABORATORY SPECIALIST SIDE

Muhittin A. Serdar

IS-049
WAYS FOR OVERCOMING DRUG RESISTANCE IN CANCER: GLUTATHIONE S-TRANSFERASE AND DESIGNING NEW MOLECULE

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Drug resistance in cancer treatment is one of the causes hindering success. Thus increasing the effectiveness of current drugs or designing new drugs are being tried. Two mechanisms are hold to ac- count for drug resistance in tumor cells. One of these is the interaction between efflux transporter pro- tein and Phase II conjugation enzymes. It is especially emphasized that glutathion S-transferase enzyme and efflux pumps are overexpressed in tumor cells and thereby reactivity of anticancer dugs are reported to decrease. Another mechanism that have gained importance in recent years is exhibition of glutathion S-transferases' playing role in control of signal proteins taking part in programmed cell death. In many can- cer types, level of glutathion S-transferase is observed to increase with entry of chemotherapeutics into the cell. Apoptosis is emphasized to interrupt with overexpression of the enzyme. It was put forward that some proteins that are responsible for signal transmission in apoptotic cycle have been repressed by glu- tatihon S-transferase and accordingly cancer cell survived. The complex generated by the enzyme needs to be cleared away by c-jun NH2-terminal kinase (JNK) that is one of the proteins taking part in signal transmission. Thus glutathion S-transferase enzyme have been the focus of pharmaceutical researches for increasing the effectiveness of anti-cancer drugs recently and inhibitors with distinct properties have begun to be produced. Researches are maintained in vivo and in vitro. Outcomes of studies conducted for many cancer types are encouraging for abolishing drug resistance. In the light of obtained data, GST seems to be the new target in designing original drugs for cancer treatment.
Keywords: Glutathione S-transferase, Cancer, Drug Resistance, Molecule Design

IS-050
EVALUATION OF IDH MUTATION VIA CIRCULATING DNA AND ONCOMETABOLITE BIOMARKERS IN GLIOMA PATIENTS

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IDH 1 and 2 are key metabolic enzymes that reversibly convert isocitrate to α-ketoglutarate. Somatic heterozygous mutations cause enzymatic loss of wild type functions and have been identified in various tumor types, mainly gliomas (80%). Mutant IDH gain a neoenzymatic activity resulting in the conversion of αKG and NADPH to the oncometabolite, D-2-hydroxyglutarate (2-HG) and NADP. The accumulation of 2-HG results in epigenetic dysregulation via inhibition of αKG-dependent histone and DNA demethylases, and a block in cellular differentiation. IDH1 mutations were initially reported in 2009 in glial tumors. Glioblastomas harbouring IDH 1 mutations were mostly secondary, occurred in younger patients and were associated with higher survival rate. The most common mutation is R132H observed in 80-90% of IDH1 mutations. In the updated WHO 2016 glioma classification IDH mutation is included as a prominent molecular marker. In routine practice, IDH mutation is determined by IHC, that is a semi-quantitative and tissue based method. There is now growing evidence suggesting that evaluation of IDH mutation by measuring circulating DNA in minimal invasive biological specimens such as plasma or cerebrospinal fluid and also by detecting 2-HG levels as oncometabolite in urine using tandem mass spectrometry have been strong alternative methods in molecular diagnosis of glioma patients. In this talk, molecular mechanisms of IDH mutation in

oncogenesis and minimal invasive methods for diagnosis will be discussed. Also, brief information will be delivered on recent studies assessing inhibitors of mutant IDH1/2 as single agents/in combination strategies that target oncogenic pathways in patients with glial tumors.
Keywords: glioma, isocitrate dehydrogenase mutation, circulating DNA, urine, tandem mass spectrometry

IS-051
MULTIFUNCTIONAL PROTEINS WITH ANGIOGENESIS EFFECT

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Scientific studies are continuing on many molecules which can be used in the diagnosis of disease. Gal-3 has a broad effect in tumor development including cell proliferation, apoptosis, cell adhesion, invasion, angiogenesis and metastasis. MIF is a pleiotropic inflammatory cytokine found in the operation of many cells and in particular in cancer. It has been said to interact with many tumor cells. MIF is thought to affect cancer by a number of mechanisms. These mechanisms perform immuno-modulation with an increase in the prevalence of immunosuppressive cells and bind to HIF-1, performing neoangiogenesis and as a result allowing transendothelial migration in the cancer. In a similar way to other proinflammatory cytokines, they perform not only modulation. MIF is the first protein which activates the formation of cytokines. There are studies on the increase of IL-6 cytokines, especially in cancer patients.
In addition to its immunity functions, ıt has an effect on angiogenesis and tumor growth. Gal-3 reduces cell loss by apoptosis, and thus has an effect on tumor growth, and at the same time can be a critical indicator during metastasis. According to the information obtained in our scan, we consider that They will be a good marker especially for cancer patients. The effect of Gal-3 and MIF on IL-6 and VEGF, understanding the pathogenesis of diseases and relating them to treatment, developing new treatment protocols and even eliminating risk factors in healthy people before they develop diseases are of great importance. This is a topic in need of research.
Keywords: Galectin-3, MIF, Angiogenesis

IS-052
CRISPR/CAS9 MEDIATED GENOME EDITING AND ITS POTENTIAL ROLE IN PERSONALISED MEDICINE

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The design of DNA-targeting molecular systems which are able to target DNA sequences with nucleotide-level precision, and subsequent development of genome editing technologies has been revolutionary in the gene engineering, and gene therapy. The CRISPR/Cas9 system has recently developed after genetic engineering methods using programmable site-specific zinc finger nucleases and transcription activator-like effectors (TALEs). The system is considered as the most clinically promising method for the targeted treatment of genetic diseases. CRISPR/Cas9 which derives from the prokaryotic adaptive immune system, can be used to specifically correct the disease-causing mutations and to activate/suppress the transcription of specific genes. In vitro animal experiments carried out for these purposes has steps that need to be met in the transition phase to the in vivo gene therapy step. The discussion will address the CRISPR/Cas9 system, its potential role in personalized therapies, the potential benefits for therapeutic use, as well as issues that may be encountered in practice.
Keywords: Gene regulation, Genome regulation, Programmable nucleases, CRISPR / Cas9, Personalized medicine

IS-053
MITOCHONDRIAL ROS IN CELL SIGNALING AND IN MECHANISM OF NEURODEGENERATION

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Mitochondria are organellae which play multiple important functions in the cell. Mitochondria produce free radicals, which due to high accessibility of the oxygen in this organelle are mostly reactive oxygen species (ROS) in the form of superoxide anion or hydrogen peroxide. Although mitochondria produce ROS in number of enzymes, the vast majority of the free radicals which named in the literature “mitochondrial ROS” are produced in ETC. Considering the constant production of ROS species, mitochondria are protected by several highly efficient antioxidant systems. The rate of ROS production in mitochondria in the brain is variable depending on the availability of substrates, the partial pressure of oxygen and on many other factors. Such rapidly changing levels of reactive oxygen species in mitochondria, coupled with multiple essential cellular functions, render ROS to be adapted in physiological signalling. The role of mitochondrial ROS shown to be important in the number of processes including signal transduction, regulation of the breathing and cell proliferation. However, mutations, environmental toxins and chronic hypoxic conditions could affect the mitochondrial redox balance and lead to the development of pathology. Oxidative stress induced by overproduction of mitochondrial ROS or impairment of the antioxidant defence results in mitochondrial dysfunction and triggering a cell death cascade. It results in pathology of different tissues with most profound effect in cardiac or neuronal cells.
Keywords: mitochondria, reactive oxygen species, cell signaling, neurodegeneration

IS-054
INTESTINAL STRUCTURE AND BIOCHEMISTRY

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Intestinal Structure and Biochemistry: Nowadays, the discovery of microbiota, which constitutes the intestinal structure and has very important functions, has turned out to be much more important than our intestine is.
Microbiota are exist in many biochemical processes such as digestion and absorption of nutrients, synthesis of vitamins and hormones, xenobiotic metabolism, ensuring the continuity of epithelial cells and giving individual metabolic, immunological and protective functions. Some bacteria in the microbiota produce propionate with the ability to inhibit cholesterol production, while others produce acetates with the ability to enhance cholesterol production, and even some bacteria have bile salt hydrolase activities. Besides, microbiota produce a short-chain fatty acid butyrate which is an effective food source for the intestinal mucosa.
Intestine has a large network of neurons, which is why the intestine is called the second brain. The intestine and brain are in close contact with the bidirectional signal pathways through the nerves, hormones and inflammatory molecules. Recent research has revealed that microbiota in the gastrointestinal tract stimulates the immune system, neural pathways, and the central nervous system afterward. These microorganisms produce neuroactive substances such as gamma-aminobutyric acid, dopamine and serotonin, which play a role in the intestine brain axis.
Microbiota is not a single unified mass but rather a secret organ composed of trillions of individual cells, at least as important as other organs.
With the greatest surface area and the greatest immune system our intestine which has the most of neurons and microorganisms, the ability of synthesize the most of dopamine and serotonine, contributes in many important biochemical process such as digestion, absorption, synthesis and detoxification is an organ that deserves the interest shown
Keywords: Intestine, Microbiome, Immunity

IS-055
MICROBIOTA-RELATED DISEASES AND LABORATORY TESTS

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Microbiota is the term that refers to the entirety of symbiotic living microorganisms in the human body. The total genome of microorganisms living in human body is called microbiom. While microbiota is fed to the human body through food residues in the gastrointestinal tract, there are some contributions to the human body. These, maximum utilization of nutrients by providing regular functioning of the gastrointestinal system, support of balance of immune system, contribution to energy homeostasis, effect on brain functions, behaviors through some mediators which secreted. Useful bacterias form a protective mucus layer on the surface of the intestines and prevent the passage of toxins through the intestinal wall. Dysbiosis is mean that the shift of the balance between beneficial bacteria and harmful bacteria in the area towards the harmful side. The result is leaky gut. Dysbiosis causes include industrial toxins, plastic products, metals, antibiotics, excessive drug use, NSAID drugs, insecticides, detergents. Diabetes, autoimmune diseases, rheumatic diseases, autism, allergies, depression, Parkinson’s and neurodegenerative diseases can develop as a result of dysbiosis and leaky gut. Bacterias (Bifidobacteria, Lactobacillus) that are useful for human health are called probiotics. The products that multiply, feed and support the bacteria are called prebiotic. Tests showing bowel health are under the heading of: Fecal flora tests, zonulin, LTT food testing, LTT gluten, LTT cereals, anti gliadin antiendomisium, LTT metals, HLA DQ genetic susceptibility, anti gliadin, antiendomisia IgA IgG, ANA, ENA, ANCA, ASCA and tests such as chronic inflammation panel can be ordered.
Keywords: microbiota, disbiosis, laboratory test

IS-056
INTESTINAL TREATMENT & DIET & SUPLEMENTS

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“All diseases start in the intestines” Hippocrates said 2500 years ago. According to Traditional Chinese Medicine, which has been barely at least 5000 years since

the present day, and whose mechanisms have been scientifically enlightened day by day, digestive system plays the most effective role in all diseases of both the immune system and the endocrine system and the nervous system. The treatment of them begins with the treatment of the digestive system. The intestines have always been important in the treatments of famous medical men Galen and İbni Sina who lived in the Anatolian soil.
Today, in the holistic medicine approach, the intestines can never be overlooked and are always in the event, even though they give clinical symptoms in chronic diseases. In other words, for the treatment of chronic diseases, firstly the problems in the intestines should be determined correctly and the intestines should be treated accordingly.
The main topics in the treatment of intestines are to create proper PH in each part of the digestive system, to remove harmful foods, to prevent toxic burden of passage by providing regular bowel movements, to combat inflammation that causes the connection between intestinal endothelial cells to become loose and permeable intestines, to bring the flora and microbiata which disequilibrium with opportunistic pathogens into appropriate situation with fermented foods, providing the clean energy source for the body's energy plant mitochondria to restore the intestinal surface, fight against SIBO symptoms and candida, parasite therapy, supporting the liver, replenishing vitamins and minerals, glutathione and methylation therapy, chelation, fecal transplantation, lifestyle changes, phytotherapy, to provide spiritual support, and incorporating appropriate complementary medical methods into the treatment.
Keywords: Intestine, intestinal therapy, diet

IS-057
INTESTINAL MICROBIOTA AND BILE ACIDS

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Microbiota is a collection of colonized microorganisms on the skin, in the gastrointestinal, urogenital and respiratory systems; majority are found in gastrointestinal system. The primary bile acids, cholic and chenodeoxycholic acid, are synthesized by classical bile acid synthesis pathway in hepatocytes, and by alternative bile acid synthesis pathway in brain, follicle, gastrointestinal system and gastrointestinal macrophages, are conjugated with glycine and taurine in hepatocytes, and then secreted to bile ducts by active transport and accumulated in gall bladder. Cholecystokinin, secreted during meals, induces contraction of gall bladder, which causes bile to excrete into duodenum. 95% of bile acids are absorbed in ileum through apical sodium-dependent transporters. Remaining 5% pass through colon are deconjugated and dehydroxylated by colon bacteria, thus converted mostly to secondary bile acids, deoxycholic and lithocholic acid, as well as ursodeoxycholic acid, iso-bile acids, allo-bile acids and oxo(keto)-bile acids.
Since bile is bacteriostatic and toxic, it may cause some structural changes in intestinal microbiota, which can lead to alterations in the distribution of bacterial species, and dysbiosis that may play a role in the pathogenesis of inflammatory bowel disease, pancreatitis, nonalcoholic fatty liver disease, obesity, diabetes, atherosclerosis, allergy, autism, fibromyalgia and familial mediterranean fever. Therefore, interactions between bile and intestinal microbiota are important.
Bile salt hydrolase and bile acid dehydratase enzymes in intestinal microbiota form unconjugated and secondary bile acids by deconjugation and dehydroxylation reactions. Unconjugated bile acids are less absorbable from intestines since they are more hydrophobic than conjugated forms. Thus, increase in bile salt hydrolase enzyme activity may lead to increased bile acid loss by gaita and increased bile acid synthesis from cholesterol, decreased serum cholesterol level and weight loss.
Keywords: Bile Acids, Dysbiosis, Intestinal Microbiota

IS-058 MUSCULOSKELETAL AND METABOLIC STATUSES OF CHILDHOOD ACUTE LYMPHOBLASTIC LEUKAEMIA SURVIVORS: THE ROLE OF VITAMIN D

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Childhood acute lymphoblastic leukemia
The remarkable progress in the treatment of childhood acute lymphoblastic leukemia (ALL) has lead to an ever-increasing survival rate. This success story is unfortunately linked to increased risks of developing secondary chronic diseases in early adulthood including obesity, cardiometabolic complications and osteoporosis. As vitamin D is recognized to play a role in musculoskeletal and metabolic disorders, its nutritional status and its relation to metabolic syndrome and bone health in a large cohort of childhood ALL survivors will be discussed.

IS-059
COST-EFFECTIVE APPROACH

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In vitro diagnostic (IVD) services are provided in laboratories where preventive health services, medical services and rehabilitation services are included in the scope of health services, where human biological samples or indirectly related substances are examined, results are reported, if necessary interpreted, the tests are run. Despite the fact that IVD tests form a very small part of total healthcare expenditure (1.4%-2.3%) and less than 5% of total hospital cost they exert a great influence on medical decisions. On the other hand, since healthcare resources are limited, health payers are interested whether the benefits of IVD tests are actually worth their cost. However, it is difficult to estimate the thresholds at which IVD tests are effective enough to justify funding.
IVD testing can reduce both direct and indirect healthcare costs if it results in more accurate and timely medical diagnoses; Laboratory test value = (Technical accuracy/Turnaround time) × (Utility/Costs).
Risk assessments of any new or significantly revised processes implemented in the laboratory will be required by the ISO 15189 assessors. All findings from the assessment includes corrected results, internal audit results, occurence management data, and customer complaints are evaluated.
In the facilities, the support of the hospital senior managements should be fully ensured before the establishment of the central laboratory service units. Increasing the managerial skills of laboratory expertise through concurrent training can allow evaluation of quality and cost together with revealing blind spot in the organization.
Keywords: laboratory management, in vitro diagnostic tests, cost-effectiveness

IS-060
PAST EXPERIENCE OF I.U. CERRAHPASA MEDICINE FACULTY (2002)

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Cerrahpaşa Medicine Faculty Central Research Laboratory was established with a board decision.
The new laboratory began to serve on January 1973. Prof. Dr. Fikret Biyal became president of the new laboratory.A commission was established before the establishment of the laboratory. The commision's report on the establishment of the laboratory was written on 18-06-1971. This report includes features of the new laboratory and how to evaluate the staff and equipment of the existing laboratories.The newly established laboratory was named Fikret Biyal central research in 1988.
The new laboratory did not become suitable for the purpose of establishment until 2000.
A new report on the subject was written in 1994. Standardization is emphasized in this report.
Hospital information operating systems were used in every field,in 2000 and the quantity of the products received and the number of the tests are monitored very easily.
Central purchases began on 23-02-2001 and all laboratories serving biochemistry were combined on 29-03-2002, all of the instruments and chemistry and 226 employees in the laboratories were evaluated. As a result, Fikret Biyal Central Research Laboratory reached its goal, after 28 years.
Prof. Dr. Münire Hacıbekiroğlu was appointed president in this process. The new organization was supported by most academicians. Between 2001 and 2004, the results were satisfactory. For example,the loss of test numbers decreased from %37 to %0.68.
Keywords: Clinical laboratory,efficiencies, cost management

IS-061
LEAN LABORATORY PRACTICES

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With the prolongation of human life, the needs of the healthcare system increases day by day. Increasing population due to the necessity of keeping up with the developing age, there is a serious need for work and financial support in the healthcare system. Another distinctive characteristic of this field is that it cannot tolerate any fault concerning quality service.
The lean approach was known a few researchers and Toyota until the 1980s. At the end of 2000s, this fact changed, lean thinking began to be implemented by many researchers in many companies.
Managers have developed a management approach that aims to improve the production process and to prevent unnecessary waste (space, time, money, staff, etc.) rather than from the product control.
When health spending are increasing rapidly, politicians, economists, health care managers, employees, even patients thinking and working on how can we build a

system that is more quality, trust,cheap and customer satisfaction.
The laboratories have an important role in this goal and that will continue to work to fulfill their responsibilities in this common goal. In addition to being in harmony with other quality studies, the concept of lean laboratory with its own problem solving method and operation technique.The "5 S" approach which is the essence of lean thinking, has been tried to prevent unnecessary resource and time wastage.
The main purpose is rescuing managers from individual heroism and to create a management lean and based on team work then define it to the all laboratories.
Keywords: Lean, laboratory, 5S

IS-062
CLONING AND EXPRESSION OF RECOMBINANT PROTEINS IN MAMMALIAN CELLS

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Global sales of mammalian biopharmaceutical blockbuster drugs exceed USD120 billion per year, and as such mammalian platforms have been of great interest in biopharma industry with respect to the advantages of mammalian systems in posttranslational modifications of the target proteins. Among them, Chinese Hamster Ovary (CHO) cells receive the most attention, followed by other platforms such as embryonic kidney cell line HEK293. Transient transfection of mammalian cells offer high productivity, however stable cloning is preferred by the industry due to reproducibility, after which optimization for maximizing efficient cell growth and protein yield are required. We will discuss cloning of gene of interest, generation of stable cell lines, screening and selection of high-expressing clones, and different platforms for expressing secreted proteins.
Keywords: biopharmaceuticals, recombinant protein, mammalian platforms

IS-063
LARGE-SCALE PRODUCTION AND PURIFICATION OF RECOMBINANT PROTEINS

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Biotechnological drugs continue to gain increasing importance in the pharmaceutical industry. Following the construction of the stable cell lines and expression of the product under laboratory conditions, scale-up and downstream processes constitute two critical steps for the target biotechnological drug candidate to reach the market. In addition to its high activity, economically feasible large-scale production of the drug candidate dictates its market price. In this respect, the laboratory scale production should be carefully optimized to the desired bioreactor size. An important point to be kept in mind is that, doubling the bioreactor size does not necessarily mean doubling the yield. For such an objective, fine tuning of processes parameters such as bioreactor size and shape, impeller speed and height, feed and air flow rates is very crucial. Once high yield is obtained in the desired volume, down-stream processes constitute the next critical step. Among all the available protocols, the selection for the most appropriate one requires intense work.
Keywords: recombinant protein, bioreactor, scale-up, purification

IS-064
FIRST BIOSIMILAR/BIOTECH. DRUG, LOCALLY DEVELOPED FROM CELL TO THE FINISHED PRODUCT: FILGRASTIM

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A biosimilar is biological product that is highly similar to an approved reference product. Active ingredients of biosimilars are similar to corresponding biological reference drugs. Biosimilar and biological reference drugs are generally used to treat same disease with same strength. Thanks to potential financial benefit and patent expirations of the reference in near future, many pharmaceutical companies have entered biosimilar market. Biosimilars have no clinically meaningful differences in terms of safety and effectiveness from the reference. However, development strategy of a biosimilar is different from that of the reference. Generally, authorities require increased number of tests, generating highly detailed data to ensure analytical similarity of the test product to the reference as well as clinical data package supporting efficacy and safety (Phase II may be omitted).
Complex structures, production starting from living organisms, and vulnerability to different conditions that can be encountered during the period ranging from manufacturing to reaching patients make the production and detailed characterization of biological drugs crucial. Moreover, manufacturing the product that is approved to be highly similar with reference product necessitates complex reverse-engineering. Biosimilar development project includes following basic steps: reference characterization, cell line-development, analytical method-development, process-development, head-to-head comparability studies, scale-up, stability, non-clinical and clinical trials. Some of them can be carried out in parallel, e.g. reference characterization /cell line-development, whereas some should follow each other, e.g. non-clinical/clinical trials.
In the light of current guidelines and literature, oral presentation will include main activities in development described above for the first biosimilar (Filgrastim) developed locally.
Keywords: biosimilar development, biotechnological drug, therapeutic protein

IS-065
THE IMPORTANCE OF PURIFIED WATER IN CLINICAL LABORATORIES AND PURIFIED WATER TYPES

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Water is the universal solvent due to its unusual properties, hydrogen bonding. This property gives it to be high polarity; therefore water can form hydrogen bonds with uncharged but polar biomolecules and also charged molecules. Water is indispensable for clinical laboratory procedures. Therefore, the laboratory water is expected to be high quality, in other words "purified". It is called "reactive water" in the worldwide. Since the accuracy of biochemical measurements and microbiological procedures are directly related with water quality, obtaining reactive water in the laboratory is an important parameter that must be taken into consideration.
According to CLSI, clinical laboratory reagent water is defined as water with the characteristics of Type I and Type II waters, that meets the minimum requirements for routine biochemistry assays. Type III water has been replaced by "autoclave and wash water". The water that is used for immunoassays, chromatographic and molecular methods is known "special reactive water". To provide reactive water filtration, adsorption, reverse osmosis, ion exchange resin, electro-deionization, and ultrafiltration methods are used in combination. Therefore, it is very important to design the most appropriate reactive water system for the laboratory. Reagent water constitutes the main component of preparation of many reagents, buffers, and diluents. Proficiency testing procedures comprising internal and external quality assessments are also dependent to laboratory water. Furthermore, suitable results for quality control samples is important to validate the water purity, which can be confirmed by the laboratory quality assurance program.
In conclusion, improving the patient safety in the laboratory testing process begins with improving reagent water quality. Laboratory personnel and biomedical professionals should become familiar with the water grade most applicable to their needs.
Keywords: Laboratory purified water, types of water, purification methods.

IS-066
PREPARATION AND DESIGN OF LABORATORY WATER

Suat Hayri Küçük

IS-067
PURIFIED WATER: VALIDATION, MONITORING, PROBLEMS ENCOUNTERED AND SOLUTIONS

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Validation and Monitoring of Purified Water. A lab has to define more than one type of water to meet its needs and specify its quality criteria. Having defined the features of water purity, the appropriateness of purified water has to be validated based on each laboratory's procedure (analysis, usage, etc.). Validation is the confirmation of appropriateness to the specified quality criteria by providing objective evidence. Following the validation stage, purified water has to be monitored so that the continuity and the usage of the specified quality criteria should be maintained. While selecting the validation procedure of any purified water to see if it has been produced appropriately for our purpose, all the technical equipment of the lab and potential interference sources have to be taken into consideration.
Possible problems encountered. Today, the major problems encountered while operating the cutting-edge auto-analysers stem from insufficient infrastructure. This study aims to shed light on the importance of purified water within the system as well as on the continuity of the system and future directions. The purpose of each and every clinical laboratory is to produce accurate results, i.e. accuracy is the sine qua non for any laboratory. Purified water constitutes the main component of many reagents used in clinical lab tests, buffer substances and diluting agent. It is essential that the holistic purification of water should be taken into consideration. Particularly, it is wrong to focus on a single quality parameter (e.g. conductivity or resistance). It is true that conductivity/resistance provides valuable data regarding the ionic purity of water; however, this is not enough for us to form a complete opinion about its purity.
Keywords: Laboratory water, purification, quality control

IS-068
LIQUID WASTE SOURCES OF BIOCHEMISTRY LABORATORIES AND WASTEWATER CHARACTERISTICS

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OBJECTIVES:Biochemistry laboratories are among the important liquid waste/wastewater sources in hospitals. Wide range and variable number of test parameters affect the wastewater characterization. In this study, it is aimed to determine hazardous liquid wastes and environmentally dangerous pollutants, and to analyze the characteristics of laboratory wastewater.
MATERIALS and METHODS: A predictive model based on mass balance calculations was developed using test numbers, contents of kits, washing solutions etc. for a central laboratory and three full-fledged hospitals. Estimated compositions were compared with hazardous waste limits (AYY-EK3/B). "Risk Quota" approach (EC, 2003) was used to assess ecological risk. Conventional parameters and micropollutants were analyzed. Ecotoxicity tests were done as acute and chronic toxicity on Vibrio fisheri, Daphnia magna, Artemia salina.
RESULTS: 71% of 123 analyzers examined are used in biochemistry laboratories. Amount of wastewater generated in biochemistry analyzers was about 1-3 m3/day, and 90% of this amount was generated by immunoassay, routine chemistry and blood count analyzers. Conventional characterization of laboratory wastewater was found to be similar to strong domestic wastewater. pH was 6.5-7.5. Some of micropollutants and 4-tert-octylphenol concentrations were higher than urban wastewater. Wastewater showed "very toxic" effects on the tested species.
CONCLUSION: Laboratory wastewater is more ecotoxic than urban wastewater. However, contribution to total pollution load was estimated to be fairly low. Separate collection/disposal may contribute to reduce ecotoxicity of wastewater while preventing pollution at source. To access guideline on "Management of Liquid Wastes/Wastewater in Healthcare Facilities" prepared under coordination of Ministry of Environment and Urban Planning http://cygm.csb.gov.tr
Keywords: Biochemistry laboratory, ecotoxicity, micropollutants, hazardous waste

IS-069
MAXIMUM EXPECTED NUMBER OF UNRELIABLE FINAL PATIENT RESULTS

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Traditionally, planning statistical quality control (SQC) is concerned with the number of controls, acceptance limits, and the rules of interpretation, but there is nothing about frequency of SQC, or run size. To relate frequency to SQC, Curtis Parvin has introduced a Max E(Nuf) by which "QC performance is measured in terms of the average number of patient samples containing an analytical error that exceeds total allowable error."
Max E(Nuf) provides a new design parameter that aligns with the emerging interest in risk based QC plans. The fourth edition of the Clinical and Laboratory Standards Institute (CLSI) guideline on statistical quality control (CLSIC24-Ed4; 2016) is concerned with risk-based SQC strategy, and presents a general guide to application Max E(Nuf) model in medical laboratories.
Max E(Nuf) model is a total error (TE)-based model, and relates performance's quality, expressed as Sigma score, to SQC strategy factors including the number of QC results, the QC rule to use at each QC event, and the frequency of QC events.
Max E(Nuf) model is a practical solution for laboratories of any size, in that small laboratories with limited samples can apply wide QC limits with small run sizes whereas large laboratories with thousands of samples per day can instead apply tighter QC limits with larger run sizes.
Keywords: Statistical Quality Control (SQC), Run size, SQC Frequency, Sigma metric (SM), Total Error (TE)

ORAL PRESENTATION ABSTRACTS

OP-001
ANALYTICAL PERFORMANCE ASSESSMENT OF BIOCHEMISTRY ANALYSER

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OBJECTIVES: The aim of the study was to asses analytical performance of biochemistry analyser with two different TEa values which were determined by the Turkey Ministry of Health-Medical Laboratory Services Standardization Harmonization Working Group and Clinical Laboratory Improvement Amendments (CLIA). The comparison of sigma values calculated with these TEa was aimed also. MATERIALS and METHODS: The study was conducted by using the internal quality and external quality control data of Beckman AU 5800 autoanalyzer (November 2017 - April 2018). Two levels of internal quality control data were used to calculate the CV %. Bias % values were obtained from the data of external quality control results for 6 months period. Monthly TE and sigmametrics were calculated for each parameter. RESULTS: The total analytical error values of all 15 parameters were below the values determined by the Turkey Ministry of Health. However creatinine, albumin and urea tests were above CLIA-TEa limits only once. Urea and albumin were Sigma <3 according to both criteria. In these tests, low sigma values were more frequently observed with CLIA-TEa. The sigma of creatinine test was <3 for one month. Sigma levels of triglyceride were Sigma <3 only by using Turkey-TEa. CONCLUSIONS: Calculation of the total analytical error may may not be sufficient as an analytical quality indicator. It should be calculated together with the sigma metrics at the same time. Sigma metric calculation can be affected by a random high bias value from external quality control. Selection of appropiate TEa value for calculation is very determinative.
Keywords: Total allowable error, sigma metric, analytical quality indicator

OP-002
EVALUATION OF THE STABILITY OF THE COMPENSANTORY JAFFE METHOD WITHIN THE DAY

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OBJECTIVES: The Jaffe method is the most commonly used method for the measurement of creatinine and is influenced by components such as proteins, glucose, ascorbic acid, ketone bodies, etc. Kinetic Jaffe (compensatory) method which is traceable according to Isotope Dilution Mass Spectroscopy (IDMS) is used in our laboratory. With atmospheric CO2 absorption, the calibration stability of the Jaffe reagent may deteriorate. Therefore daily calibrations are applied in our laboratory. There is no information about any deviation within the day. We decided to do this work in response to occasional feedback from clinics. MATERIALS and METHODS: Creatinine measurements were performed on two autoanalyzers (AU2700 Biochemstry Autoanalyzer, Beckman-Coulter). Daily calibrations and internal quality controls were studied. Creatinine levels of the patients were measured at 10:00, 13:00 and 16:00 (twice) and the averages were taken and compared. The possible variables were excluded by using the same calibration and control lots RESULTS: When the averages of creatinine measurements within the day were compared, and there was no significant difference ($p = 0.259$). Also, a CV of 6 measurements made for the same sample was calculated and observed to be within acceptable limits. Similarly, there was no significant difference between the eGFR values ($p = 0.196$). CONCLUSIONS: The creatinine test is one of the most requested tests. In addition, the accuracy of creatinine-based assays (creatinine clearance, eGFR, urine creatinine, etc.) is dependent on reliable measurement of creatinine. This preliminary study demonstrates that there is no deviation in creatinine measurements with the Jaffe method during the day by daily calibration.
Keywords: Creatinine, Jaffe, IDMS

OP-003
EVALUATION OF SYSMEX UF-5000 AUTOMATED URINE SEDIMENT ANALYZER PERFORMANCE

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OBJECTIVES: Urine analysis is one of the most frequently studied tests in clinical laboratories. Automated urine analysis is usually preferred for laboratories with intensive workload. The aim of this study was to evaluate the performance of the automated urine analyser Sysmex UF-5000 MATERIALS and METHODS: A total of 337 first morning urine samples were studied by both UF-5000 and manual microscopy concurrently. The degree of concordance (Kappa coefficient) were evaluated. The sensitivity and specificity for the UF-5000 compared to manual microscopic examination were assessed. Carry over studies was also performed. RESULTS: The degree of concordance of erythrocyte and leukocyte counts in microscopy of 337 urine specimens with manual microscopy was found to be 0.53 and 0.73 respectively (kappa coefficient). The sensitivity and specificity values of RBC and WBC were calculated for UF-5000 as %97.5, %88.88, %92.18, %96.65, respectively. The results of carry over analysis for both RBC and WBC were %0. CONCLUSIONS: The sediment microscopy analysis of erythrocytes and leukocytes with UF-5000 presented moderate and good correlation with manual microscopy.
Keywords: Sediment,Urine,UF 500

OP-004
COMPARISON OF TEST RESULTS OBTAINED FROM LITHIUM HEPARIN GEL TUBES AND SERUM GEL TUBES

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OBJECTIVES: Serum is the most commonly used sample in biochemical analysis. However, there is currently trend that plasma might be alternative to serum due to some of its advantages. This study aimed to compare test results obtained from lithium heparin gel tubes and serum gel tubes. MATERIALS and METHODS: A total of 40 participants (20 healthy, 20 hemodialysis patients) were included to the study. Blood samples were drawn into serum gel tubes with clot activator (Greiner-Bio-One) and lithium heparin gel tubes (Greiner-Bio-One). 28 analytes analyzed frequently in clinical biochemistry laboratory were measured in serum and plasma samples on Cobas c501 (Roche Diagnostics) analyzer. To determine whether there was significant difference among test results, total error (TE) was calculated and compared total allowable error (TEa) limits based on Republic of Turkey Ministry of Healthy. For tests whose TEa limits have not been defined by this reference, limits based on CLIA and biological variation were used. RESULTS: TE of below 5% was calculated for sodium, calcium, chloride, amylase, urea, LDL-measured, glucose, magnesium, cholesterol, uric acid, AST and HDL. LDH, CK, iron, total bilirubin, total protein, CRP, potassium, albumin and triglyceride had TE of 5-7%. TE of 7-10% were determined for ALT, lipase, creatinine, phosphorus, LDL-calculated, direct bilirubin, GGT and ALP. CONCLUSIONS: It was concluded that test results of 28 analytes measured in lithium heparin gel tubes are comparable to those of serum gel tubes. It is thought that several advantages including reduced turnaround time might be provided by using plasma instead of serum in analysis of these tests.
Keywords: gel separator, lithium heparin, plasma, sample types, serum

OP-005
DATA LOSS FROM INSTRUMENT RESULT PAGE TO THE LABORATORY RESULT PRINT

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OBJECTIVES: Hematology instruments in our laboratory analyze patient samples; send the results of selected parameters to the laboratory information system, and finally we report the results in a format designed according to the instructions of the government. The two data media were searched for composition and content. MATERIALS and METHODS: On 24 July 2018, 100 consequent patient results were viewed on the instrument results screen and recorded. Then, laboratory results of the patients were printed. The two results were compared, especially concerning the flags and histograms. RESULTS: 40 results in 100, contained at least 1 flag. 18 in 40 results with flags were “Hypochromia”, “Microcytosis” and “Anisocytosis”. These 3 flags were considered to be estimated by the quantitative results of the patients. In the remaining 22, “Immature neutrophils”, “Blasts”, “Cellular interference”, “Giant platelets”, “Platelet clusters”, “Variant lymphocytes”, “NRBC” and “Eosinophilia” were flags. Except “Eosinophilia”, they were considered to have no counterpart in the laboratory results prints. CONCLUSIONS: Flags related to hypochromic microcytic anemia composed the majority of the flags. Absence of these flags may be clinically harmless. The others on the contrary, necessitate a peripheral smear evaluation, which might contribute to important clinical decision. Clinicians did not request a peripheral smear for any of patients in 15 days of follow-up. The missing flags, as present in the instrument result page but absent on the laboratory result page is a data loss, that has a potential impact on clinical decision. I suggest, they necessitate a peripheral smear evaluation as a reflex test.
Keywords: flags, hemogram, peripheral smear, result report

OP-006
RELATIONSHIP AMONG INTERNAL QUALITY CONTROL, EXPONENTIALLY WEIGHTED MOVING AVERAGES, PATIENTS RESULTS

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OBJECTIVES: This study set out to investigate the efficiency of normal and high-level internal quality control results and exponentially weighted moving averages (EWMA) for reflecting analytic error affecting patient results. MATERIALS and METHODS: Three months of data of internal quality control results and averages of daily patient results belongs to free thyroxine(fT4), thyroid stimulating hormone(TSH) were obtained from the laboratory information system. The relationship between daily internal quality control results, EWMAs and daily patient results were analyzed by Pearson correlation test. The highest correlations between EWMA and patient results average was determined by changing the weighting factor "λ value" which is used for EWMA calculation. RESULTS: When the relationship with the patient results averages is examined; the correlation coefficients (r) for fT4 were found to be 0.26 and 0.37, respectively (p <0,05). The highest r values belong to EWMA were found to be 0.34 (λ=0.15) and 0.42 (λ=0.6) for the normal and high levels, respectively (p<0,05). The r values of normal and high internal quality control results for TSH were found be 0.14 (p=0,222) and 0.30 (p<0,05) respectively. The highest r values belongs to EWMA were 0.17 (λ=0,55p=0,125) and 0.36 (λ=0.55, p <0,05) for the normal and high levels.
CONCLUSIONS: The results of high-level quality control tests were found to be more effective in detecting analytical errors of fT4 and TSH tests. This efficiency can be increased by selecting the appropriate λ value for EWMA calculation.
Keywords: internal quality control, exponentially weighted moving average, analytical error, fT4, TSH

OP-007
THE IMPORTANCE OF NECTIN2 AND NECTIN4 ADHESION MOLECULES IN BREAST TUMORS

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OBJECTIVES: Breast cancer is still the leading cause of cancer deaths in women.Nectins, which are CAM, play a role in several intercellular junctions. close follow-up of patients with primary breast cancer increases the feasibility of effective treatments.We aimed to investigate both protein and mRNA levels of nectin-2,4, which are considered to be diagnostic and prognostic in these cancers, in serum material. The results obtained will be compared with healthy controls and the possible differences between the two groups will be determined statistically.
MATERIALS and METHODS: Serum levels of nectin-2 and nectin-4 molecules to be studied will be determined by ELISA and mRNA levels by RT PCR. cDNA synthesis is performed from total RNAs.GAPDH is used as the internal control and SYBR Gren as the fluorescence molecule to determine the expression in serum. Measurement of expression levels will be performed on RT PCR System. The present work was supported by the Research Fund of Istanbul University. Project no:24745
RESULTS: 60 cases of breat cancer were enrolled in the study. Serum nectin-2 and nectin-4 protein levels were significantly lower in patients with lung cancer than the healthy contorls. The obtained nectin gen expression data and conclusions of this study will be presented oral presentation.
CONCLUSIONS: Nowadays breast cancer, diagnosis and development of new effective treatment methods, cancer is associated with an understanding of the biochemical and molecular characteristics of the cell. Different transcription in tumor cells, changes in signal transduction, know the balance of factors affecting proliferation new treatment in future breast cancer options.
Keywords: nectin2,4, adhesion molecule, breast cancer

OP-008
EVALUATING THE ANTI-TUMOROGENIC POTENTIAL OF MEMANTINE IN 4T1 MICE BREAST CANCER TUMOR MODEL

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OBJECTIVES: N-methyl-d-aspartate (NMDA) receptor antagonist Memantine, is one of the most commonly used drugs for the treatment of Alzheimer's disease. Despite many studies investigate its clinical and therapeutic usage, its in vivo effect on cancer cells has not been investigated yet. In this study, it is aimed to reveal the potential in vivo usage of Memantine as an anti-cancer agent on the 4T1 mouse breast cancer tumor model. MATERIALS and METHODS: 30 Balb/c female mice were subcutaneously inoculated with 4T1 cells to form a breast cancer tumor and 5 and 10 mg/kg doses of Memantine were injected intraperitoneally after palpable tumor formation. Tumor growth was measured using calipers every 2–3 days. Total protein isolation from tumor tissues was done when the experimental procedure is over. The effects of memantine on tumor progression were assessed by western blotting. RESULTS: It was concluded that Memantine does not impact the tumor size whereas it affects cell energetics related (mTOR, GSK3beta ve PGC1a) and metastasis (E-kaderin, Vimentin ve B-Katenin) related protein expressions. CONCLUSIONS: This is the first study that investigates the anti-cancer effect of Memantine in vivo as a repositioned drug candidate. We strongly belive that after more detailed investigation of Memantine's molecular mechanism over cancer cells, its potential usage as a therapeutical option would be assessed better.
(This research was supported by Gazi University BAP Number: 64 / 2018-01).
Keywords: Memantine, 4T1, breast cancer, in vivo

OP-009
WWOX KNOCKOUT CELLS EXHIBIT CHROMOSOMAL ALTERATIONS AND COPY NUMBER VARIATIONS

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OBJECTIVES: Our aim is to determine if Wwox contributes to genome stability. MATERIALS and METHODS: Karyotype and copy number variation (CNV) analyses were carried out using Wwox-knockout and Wwox-wildtype MEF cell lines. CNVs were detected through array comparative genomic hybridization (aCGH). RESULTS: Karyotype analysis of three cell lines (two knockout and one wild type, established from Wwox-knockout mouse models) showed near tetraploidy with chromosomal losses and gains. Both knockout MEFs exhibited two structural abnormalities not present in the wild-type cell line: del(7) and del(4). Loss of the distal arm of chromosome 4 encompasses the murine Cdkn2a gene, encoding p16, a locus frequently deleted in human cancers and in cultured cells. CNVs were assessed in DNAs of MEFs from two distinct Wwox-knockout mouse models and compared with DNAs from corresponding wild-type littermates (cell line pairs, KO5/WT4 from Wwox-knockout and Wwox5/Wwox3 from a different Wwox-knockout mouse model). Three distinct deletions were observed in the two knockout MEF lines at chromosome locations 1, 4, and 8. CONCLUSIONS: The karyotype and CNV results suggest that Wwox participates in protecting the genome from damage.
Keywords: Wwox, genome stability, copy number variation, deletion

OP-010
ESCULETIN ENHANCES CASPASE-DEPENDENT APOPTOTIC CELL DEATH AND INSULIN SECRETION IN INS-1 CELLS

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OBJECTIVES: Insulinoma INS-1 cells are pancreatic tumors that have been shown important characteristics of pancreatic beta cells. Esculetin is a compound of coumarin and has shown inhibitory effect on other cancer cell lines. The aim of this study was to investigate occurred cellular death and molecular mechanism in INS-1 cells. MATERIALS and METHODS: We have used INS-1 cell line in this study. The cell viability was assessed with WST-1 assay. The cell proliferation was indicated with Cell Proliferation ELISA, BrdU (colorimetric) kit. Apoptosis fold increase was determined using Cell Death Detection ELISA Kit. Necrosis was determined by ELISA using LDH Kit. The heat shock protein 70 (HSP70) levels, full caspase-3 levels and Beclin-1 levels were showed by Western Blotting. Reactive oxygen species were measured by using dichlorofluorescein diacetate. Insulin levels were analyzed by ELISA method. RESULTS: Cell viability and cell proliferation decreased with esculetin given in increasing doses in INS-1 cells. Apoptotic cell death was 32 fold increased by the administration of 3000 uM esculetin compared to the control group. Full caspase-3 levels decreased in given 3000 uM esculetin group according to control group. There was no difference between control group and experimental group at levels of necrotic cell death, the cellular autophagy marker Beclin-1, HSP 70 and reactive oxygen species. Insulin levels were increased with given 3000 uM esculetin. CONCLUSIONS: As a result, administration of esculetin to INS-1 cells caused caspase-dependent apoptotic cell death. Esculetin increases insulin secretion which is important for beta cells to protect the remaining cells during death.
Keywords: Insulinoma, INS-1 cell line, apoptosis, insulin

OP-011
THE RELATIONSHIP WITH APOPTOSIS OF BORTEZOMIB RESISTANCE IN MULTIPLE MYELOMA CELL LINES

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OBJECTIVES: The most important problem in treatment of cancer is the development of resistance against cancer drugs. Multiple Myeloma (MM) is hematological cancer characterized by the accumulation of malignant plasma cells in bone marrow. Bortezomib is one of the most effective chemotherapeutic drugs used in treatment of MM. However, resistance against bortezomib in cancer treatment process is a frequent occurrence. For this reason, we were investitigated expression levels of bcl-2, bax, kaspas-3 and p-53 genes in apoptosis mechanism related to bortezomib resistance in multiple myeloma. MATERIALS and METHODS: Bortezomib-resistant(KMS20) and bortezomibe-sensitive(KMS28) cell lines were provided for this study. MTT assay was performed to confirm that the cell lines were resistant/sensitive and IC50 values of bortezomib were determined. RNA was isolated from both cell lines and cDNAs were obtained. Expression levels of studying genes were analyzed by qRT-PCR. RESULTS: In gene expression analysis results, the bcl-2/bax ratio was found to be 1.14 versus 5 nM bortezomib in KMS20(resistant) cell line and 0.49 in KMS28(sensitive) cell line. For the 25nM bortezomib dose, the bcl-2/bax ratio was found to be 1.13 in KMS20 cell line, and 0.09 in KMS28 cell line. Expression of the kaspas-3 gene is decreased in KMS20 cell line while it increases in KMS28 cell line. CONCLUSIONS: Accordingly, apoptosis is suppressed in KMS20 cell line and cells are resistant to bortezomib, whereas apoptosis is induced in KMS28 cell line and cells become sensitive to bortezomib. Our results will allow to understand the molecular mechanisms causing drug resistance in cancer.
Keywords: Apoptosis, Bortezomib, Cancer, Drug Resistance, Multiple Myeloma

OP-012
MDR TRANSPORTERS RESPONSIBLE FOR TIME-DEPENDENT EXTRUSION OF BORTEZOMIB FROM MULTIPLE MYELOMA CELLS

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OBJECTIVES: Cancer is the most common causes of death in world. Multiple Myeloma (MM) is hematological cancer characterized by accumulation of plasma cells. Bortezomib is the most effective chemotherapeutic drug used in treatment. However, resistance to bortezomib affects MM treatment negatively. Therefore, changes in gene expression of drug resistance-associated proteins [MDR-1(P-gp), MRP-1, MRP-2, MRP-3, MRP-6, MRP-7 and GSTP-1] depending on time were investigated in MM cell lines. MATERIALS and METHODS: IC50 values of bortezomib were determined by MTT assay in KMS20 (resistant) and KMS28 (sensitive) MM cell lines. Both cells were exposed to doses of 5 and 25nM bortezomib for 24 and 48 hours to RNA isolation. Then cDNAs were obtained and expression levels of genes were analyzed by qRT-PCR. RESULTS: qRT-PCR results showed that MDR1, MRP1 and MRP7 genes increased in KMS20 for 24 and 48 hours. In KMS28; MRP1, MRP2, MRP7 and GSTP1 genes were increased, MDR1 gene was not detected. MRP6 gene was decreased, MRP3 gene was not observed in both cell lines. CONCLUSIONS: In this study which we performed by exposing MM cells to higher doses of bortezomib for long-term, MDR1, MRP1 and MRP7 gene overexpressions were observed in KMS20. This increase in MRP1 gene expression different from our previous study, was due to long-term exposure of cell to high doses of bortezomib. The reason of increase in expression GSTP1, MRP1, MRP2 and MRP7 gene in KMS28 is also long-term exposure to high doses of bortezomib. Conclusively, the use of these gene expression inhibiting agents together with bortezomib, may allow to show expected effects on MM cells.
Keywords: Bortezomib, Cancer, Drug Resistance, MDR, Multiple myeloma.

OP-013
CURATIVE EFFECTS OF B-GLUCAN AGAINST TCDD-INDUCED OXIDATIVE KIDNEY DAMAGE IN RATS

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OBJECTIVES: 2,3,7,8-Tetracholorodibenzo-p-dioxin (TCDD) is an environmental contaminant and it is formed in the manufacture of chlorinated hydrocarbons, incineration processes, paper and pulp bleaching and emissions from steel foundries and motor vehicles. β-glucan (βg) is natural polysaccharide that have pharmacological activities such as immunomodulation and antioxidant activity. The aim of this study was to investigate the effectiveness of βg on TCDD-induced oxidative kidney damage in rats. MATERIALS and METHODS: Rats (n:32) were divided randomly into 4 equal groups. One group was kept as control and given corn oil as carrier. In second group, TCDD dissolved in corn oil was orally applied at the dose of 2 µg/kg/week for 30 days. In third group, βg was orally applied at the dose of 50 mg/kg/day by gavages. In fourth group, TCDD and βg were given together at the same doses. At the end of 30 days, the rats were euthanized under ether anesthesia. RESULTS: TCDD administration significantly increased TBARS levels, a marker of lipid peroxidation and significantly reduced SOD, CAT, GSH, and GPx levels, which are members of the antioxidant defense system. However, βg treatment significantly improved TCDD-induced oxidative damage in the rat kidney tissue. CONCLUSIONS: As a result, the oxidative stress caused by TCDD has been removed by the βg in rats in a time-dependent manner. Thus, βg may be useful for the prevention and treatment of renal damage due to TCDD.
Keywords: 2,3,7,8 TCDD, Beta-glucan, Nephrotoxicity

OP-014
BLOOD MDA AND GSH LEVELS IN GASTRITIS AND CANCER PATIENTS

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OBJECTIVES: To determine the role of increasing lipid peroxidation and declining GSH's on cancer and gastritis; despite the fact that the role of antioxidant systems on cancer and gastritis is still unknown.
MATERIALS and METHODS: Blood MDA and GSH levels of gastritis and cancer patients was determined by comparting the control group,13 healthy individuals, with the total of 25 experimental groups, which consisted of 13 gastritis patients and 12 cancer patients, who applied to the Research and Application Center of Kafkas University to be in the research.
RESULTS: GSH values for healthy group was 1.65±0.43 mol / ml, 1.89±0.24 mol / ml in the gastritis group and 1.51±0.28 mol/ml in the gastric cancer patients. In the control group the MDA value was 0.67±0.66 nmol / ml, gastritis group value was 2.97 ±1.77 nmol/ml and 3.65±2.46 nmol/ml was the result in the gastric cancer patients. MDA levels in gastritis and gastric cancer patients were statistically significant ($p < 0.05$) compared to the control group.
CONCLUSIONS: Although the etiology of gastric cancer in humans is not fully known, according to this study it is possible to say that antioxidant defense system, increased oxidative stress and lipid peroxidation plays an important role in gastric carcinogenesis.
Keywords: Malondialdehyde (MDA), Reduced Glutathione (GSH), Cancer, Gastritis.

OP-015
THE ROLE OF COAGULATION PROTEASES IN REGULATION OF ENOS UNCOUPLING IN DIABETIC NEPHROPATHY

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OBJECTIVES: Diabetic nephropathy (dNP) is caused by extracellular matrix accumulation in mesangium after primary alterations in glomerulus and podocytes. Activated Protein C (aPC), being a coagulation protease, inhibits coagulation, apoptosis, and inflammation in intact endothelial cells. In this study, we tried to identify the mechanisms through which coagulation-protease-dependent signaling regulates eNOS activity.
MATERIALS and METHODS: We used high-glucose-exposed mouse podocytes (mp-HG) as well as diabetic models (wild type; WT-D and high-level actived protein C synthesizing transgenic mice; APChigh-D) that were formed by streptozotocin (STZ) administration. aPC was administered as a therapeutic group. PLA was conducted to the mp test groups. BUN levels were measured in experimental groups. In addition to this, PAR-1,2,3,4, eNOS, Arjinaz-2, Caveolin-1, DHFR, Akt total protein levels were determined by immunoblotting. PAS and WT-1 staining were also carried out as pathohistochemical markers.
RESULTS: Increased interaction between Arg-2 and eNOS following high glucose administration to mp was lowered with aPC administration ($p<0.01$). While PAR-2 levels decreased, PAR-3 total protein levels increased ($p<0.001$) in experimental groups. Increased BUN levels, eNOS, Arg-2 and Cav-1 total protein levels in diabetic groups were decreased with aPC administration (respectively $p<0.05$, $p<0.05$, $p<0.001$ ve $p<0.05$). Decreased DHFR and Akt total protein levels in diabetic groups were increased with aPC administration (respectively $p<0.05$ and $p<0.01$). The rate of glomerular mesengial accumulation increased with diabetic conditions were decreased with aPC administration ($p<0.001$). The decreased cell viability with diabetes were increased with aPC administration ($p<0.001$).
CONCLUSIONS: In conclusion, aPC, known as an important element in coagulation cascade, also mediates eNOS activity in dNP.
Keywords: Activated protein C, arginase-2, diabetic nephropathy, Dihydrofolate reductase, eNOS, PAR-3

OP-016
THE PROTECTIVE AND ANTIOXIDANT EFFECTS OF ASTAXANTHIN AGAINST CISPLATIN-INDUCED TOXICITY IN RATS

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OBJECTIVES: Cisplatin (Cis) is a platinum-based drug,which is used as a chemotherapeutic agent.Cis has several side effects such as ototoxicity,nephrotoxicity and neurotoxicity.Astaxanthin (Ast) is a carotenoid pigment with antioxidant and anti-inflammatory effects. The aim of this study is to determine the possible protective and antioxidant effects of astaxanthin against cisplatin-induced toxicity in rats MATERIALS and METHODS: Sprague-Dawley rats were included in the study (n=32).Cis was given i.p. at a dose of 8mg/kg/day for three days.Ast group received additionally 100mg/kg/day via gavages for 10 days. Control received olive oil at the same dose.Rats were sacrificed,blood was collected for determination of BUN, creatinine, ALT, AST, hsTNI, TNF-α, IL-6 and liver, kidney and heart tissues were removed for determination of oxidative stress parameters such as malondialdehyde(MDA),glutathione(GSH) levels and myeloperoxidase (MPO) activity.
RESULTS: The BUN,creatinine, ALT, AST, hsTNI, TNF-α, IL-6 levels are ($p<0.001$) increased in Cis group to the control group.Cis+ast group reversed TNF-α, ALT and hsTNI levels. MDA levels were higher in liver and heart tissues in Cis group, because kidney MDA levels were not different. GSH levels in kidney tissues were different higher in Cis group ($p<0.001$). MPO activity,which shows inflammation, is increased in all tissues of Cis treated rats.Ast treatment reverses the effects of Cis via reducing MPO activity,because the antioxidant effects to MDA and-or GSH levels in kidney,heart and liver tissues were not changed.
CONCLUSIONS: Our findings suggested that Cis treatment induced damage in liver,heart and kidney tissues.Inflammation is the major mechanism which can be reduced with Ast treatment.Results of oxidative stress parameters show that Cis treatment reveals with “Cisplatin resistance” with increasing GSH levels in these groups.
Keywords: : Astaxhantin, Oxidative Stress, Cisplatin, Toxicity

OP-017
EFFECTS OF GENDER AND GLUCOSE-BASED NUTRITION ON REDOX HOMEOSTASIS IN DROSOPHILA MELANOGASTER

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OBJECTIVES: Currently, Drosophila melanogaster has been used as a model organism in various experimental studies such as aging-lifespan, nutrition, disease models. In our study, we aimed to evaluate effects of high sucrose and protein- based nutrition on redox homeostasis in Drosophila melanogaster according to gender.
MATERIALS and METHODS: Drosophila melanogaster colonies were divided into 4 groups as female and male flies feeding with low glucose-high protein based medium and female and male flies feeding with high glucose high protein based-medium. Protein oxidation biomarkers such as protein carbonyl (PCO), dityrosin (DT), formylkynurenin (FKYN), N-formylkynurenine (NFKYN), lipid peroxidation marker lipid hydroperoxide (LHP), glyoxidative stress marker; advanced glycation end products (AGE) levels and antioxidant enzyme; Cu,Zn-superoxide dismutase activity (Cu,Zn-SOD) were analyzed by spectrophotometric or spectrofluorometric methods.
RESULTS: Higher levels of PCO, DT, KYN, NFKYN, LHP, AGE levels and reduced activity of Cu,Zn-SOD ($p<0.001$) were found in flies- feeding with high glucose-protein based medium as compared to low glucose based medium. Higher oxidative damage levels and conversely, higher Cu,Zn-SOD activity were found in male flies than females ($p<0.001$ for each parameter).
CONCLUSIONS: Our results shows that nutrition type plays important role in maintenance of redox homeostasis. Low oxidative damage biomarker levels were shown in females. These data represent similar result with female mammals which are more sheltered against oxidative damage than males. On the other hand, elevated activity of Cu,Zn-SOD may be considered as compensatory mechanism. Further studies need to clarify possible mechanisms and relationship between signal pathways, lifespans and oxidative damage triangle.
Keywords: Nutrition,Gender, Drosophila melanogaster, Redox homeostasis

OP-018
CAN AVANAFIL AND ZAPRINAST CHANGE SOME SELECTED CYTOKINE LEVELS İN OVARIECTOMIZED RAT’S LIVER?

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OBJECTIVES: It was reported that postmenopausal-period, a physiological process in women, is associated with increasing bone resorption and oxidative stress due to acute estrogen-deficiency. Studies reported that phosphodiesterase-5 inhibitors positively contribute to bone-mineral-density and thickness, and decrease levels of malondialdehyde, coenzyme Q10 and 8-hydroxy-2-deoxyguanosine, which are associated with oxidative stress. We investigated the changing levels of some selected-proinflamatuar cytokines and TNF-α in the liver of rats with ovariectomy, which have the same condition with postmenapozal period, and effect of Zaprinast and Avanafil (phosphodiesterase-5 inhibitors) on the experimental parameters.
MATERIALS and METHODS: 24 albino female rats (8 months) and weighing 250-350g were used and 4 groups of equal-number were randomly assigned. First group: abdomen region (about 2cm) was opened and again closed (sahm-group). Second group: abdominal region was opened and was performed ovariectomy (OVX). Groups 3 and 4: the same procedure with OVX group was performed to them and were administered 10 mg/kg zaprinast and avanafil for 60 days, respectively. IL-1β, IL-6, IL-8, IL-10 and TNF-α levels were measured by commercially available ELISA kits in liver of rats that were anesthetized after 60 days.
RESULTS: IL-1β, IL-6, IL-8 and TNF-α levels were increased in groups with OVX compared to sahm group, while they were decreased in zaprinast and especially avanafil-treated groups with OVX and were similar to sahm group values. However, this difference was only significant for IL-1β levels ($p<0.05$).
CONCLUSIONS: The data showed that zaprinast and especially avanafil decreased IL-1β levels. This may support the opinion that phosphodiesterase-5 inhibitors inhibit bone demineralization by inhibiting oxidative stress.
Keywords: Avanafil, phosphodiesterase-5 inhibitors, interleukin, ovariectomy, zaprinast

OP-019
DIRECT BILIRUBIN TEST OVERUSE; AN APPROACH OF RATIONAL LABORATORY USE

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OBJECTIVES: The direct bilirubin analysis is one of the most common test in clinical biochemistry laboratories. It has been requested together with total bilirubin test by clinicians. We want to investigate unnecessary use of direct bilirubin testing for the last year within the principles of rational laboratory use.
MATERIALS and METHODS: The direct bilirubin test is performed by the diazo method on the Architect c16000 (Abbott) autoanalyzer in our laboratory. We investigated the tests in which total and direct bilirubin analyses were ordered together from the patients who had a normal total bilirubin level (<1.2 mg/dL) between the days of 01.05.2017 and 30.04.2018. Besides, we searched that direct bilirubin results were higher than 0.5 mg/dL in this group.
RESULTS: The number of direct bilirubin analyses, in which total bilirubin results were between reference values, were 181,551 in the last year. Of these results only 1.58% (2,876) of direct bilirubin test were higher than reference level.
CONCLUSIONS: Unnecessary tests in clinical biochemistry laboratories lead to labor and financial loss. Direct bilirubin test orders with normal total bilirubin levels should be restricted within the framework of Rational Laboratory Practices. The mild elevations of direct bilirubin with normal total bilirubin levels are not clinically significant. Direct bilirubin should be analyzed as a reflex test in the patients with high total bilirubin levels. In addition, if the total bilirubin is normal, direct bilirubin can also be studied as a reflective testing in accordance with diagnosis. With this application, each laboratory can save cost considerably.
Keywords: Direct Bilirubin, Rational Laboratory, Reflex Test

OP-020
EVALUATION OF SIX SIGMA WITH DIFFERENT QUALITY GOALS; NEED OF HARMONİZATION AND OTHER PROBLEMS

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OBJECTIVES: Six Sigma Methodology; is a quality management tool that focuses on process variables and provides information about process performance. This methodology is widely used in clinical laboratories to evaluate analytical process performance and traditionally combines three components: tolerance limits (total allowable error), bias and impression. However, some defects have occurred during the adaptation of this industry-based methodology to clinical laboratories.

Briefly, it don't account for all results, bias correction is applied twice and the foremost there is no harmonization in the tolerance limits. The harmonization problem was addressed in our study and sigma values were calculated by different tolerance limits recommended by various organizations. In addition, sigma calculation has been performed analyte-based goals which was determinated to the quality expectations of our laboratory in line with Milan hierarchy. MATERIALS and METHODS: Sigma values were calculated using CLIA, Ricos, RCPA and Turkey TEa goals for 15 parameters. The benchmark performance was accepted 3σ. RESULTS: In our study, RCPA goals are the most stringent, followed by the Ricos BV Desirable, CLIA, and finally the Turkey TEa goals coming in last. According to RCPA goals, seven analytes failed to reach the required sigma level. In contrast, all analytes have met required quality level for Turkey TEa. In analyte-based goals only albumin showed borderline performance when electrolytes were excluded. CONCLUSIONS: It is important to ensure harmonization of tolerance limits for objectively international comparison. Furthermore, it is considered that the utilization of analyte-based goals is the most reasonable way, up to international consensus on tolerance limits. Keywords: Six Sigma, Quality management, Harmonization

OP-021
RATIONAL USE OF LABORATORY TEST REQUEST PROCEDURE: 25-HYDROXY VITAMIN D

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OBJECTIVES: Rational Use of Laboratory Rational Test Request Procedure released by Ministry of Health, Republic of Turkey on 06 March 2018 recommends 90 day request interval for 25-Hydroxy-Vitamin-D. In this study we aimed to determine the rate of recurrent testing for Vitamin D. MATERIALS and METHODS: Numbers of Vitamin D test requests for year 2017 were obtained from laboratory information system. Patients were divided into two groups as adult and pediatric. Requests were evaluated based on Vitamin D test per patient in 90 days and also as low and normal based on reference range. RESULTS: There were 22580 Vitamin D tests requested in year 2017 and 4290 (19%) of them were repeated test request in 90 days. Among the 4290 repetition of tests for Vitamin D, 4104(95.7%) of them were requested from adult and 186 (4.3%) test from pediatric patients. The most frequent repetitions were from Internal Medicine inpatient and outpatient clinics (80%) within adult patients. It is noteworthy that Vitamin D test results from 2342 (56.2%) adult patients were low if repeated in the last 90 days. CONCLUSIONS: Although the Ministry of Health recommends 90 days testing interval in the procedure, we observed 19% of repeat rate. Laboratory tests should answer a specific question and be performed only if their results can have an impact on patient care. Because most of our repetitions were from low reference range patients, we believe an exception of 90 days limit for those in needs, could have an impact on patient care. Keywords: Rational Use of Laboratory Test Request Procedure, 25-Hydroxy Vitamin D, Appropriate Test Request

OP-022
MIR-29B-2 REGULATES LYSYL OXIDASE-LIKE 2 AND HEAT SHOCK PROTEIN 47 IN HYPERTROPHIC SCAR

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OBJECTIVES: Hypertrophic scars are characterized by erythematous and raised fibrous lesions predominantly composed of excessive amounts of collagen deposits. Despite many studies that have examined the pathophysiology of hypertrophic scars, the underlying causes and the best treatment modalities are still unknown. The miR29 family in humans includes four different members. The particular interest of miR29 family members is due to their ability to inhibit the synthesis of extracellular matrix (ECM) proteins, especially collagens. The aim of this study was to investigate the role of miR-29 family on collagen maturation in primary hypertrophic scar cells. MATERIALS and METHODS: Tissue specimens were collected and established primary normal and hypertrophic scar fibroblast cell cultures. Evaluation of miR-29 family members' gene expression was determined by using qPCR. After transfection, extracellular LOX activity was measured using LOX activity kit in supernatants. LOX and HSP47 protein expressions were determined by using Western Blotting. RESULTS: The significant decrease in miR-29b-2 gene expression in skin hypertrophic scar tissue was determined in comparison to healthy control skin. After miR-29b-2 transfection, extracellular LOX activity decreased in transfected hypertrophic scar fibroblast cells compared to non-transfected scar cells. Transfection of primary hypertrophic scar cells with miR29b-2 led to a significant increase HSP47 and LOXL2 protein expression. CONCLUSIONS: Downregulation of miR-29b-2 caused overexpression of LOXL2 and HSP47 in hypertrophic scar. Overexpression of these genes enhances the aggresiveness of this disease. The identification of novel pathways regulated by the downregulation of miRNA may lead to a better understanding of molecular pathogenesis in fibrotic diseases. Keywords: hypertrophic scar, HSP47, LOX, miR-29 family,

OP-023
MGLU2 MGLU3 EXPRESSION LEVELS AT DIFFERENT L-GLUTAMATE DOSES IN SCHIZOPHRENIA MODEL

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OBJECTIVES: Glutamate and glutamate receptors which are widely to serve in the brain synapses, suggesting that the brain main glutamate pathways in the etiology of many diseases hosting psychosis.Although a narrower range as a group of diseases using the diagnostic criteria of psychosis, schizophrenia is one of the diseases in this scale. In this research, we planned a ketamine induced NMDA antagonism in Wistar rats, in order to examine the role of metabotropic glutamatergic receptors modulation and expression in schizophrenia pathology. MATERIALS and METHODS: Ketamine which is an anesthetic is treated daily in 30mg/kg for 5 days.On the day when the injections are completed, brain tissues of the animals will immediately be removed under phenobarbitale (50mg/kg) anesthesia and these tissues are maintained under -80°C until the laboratory research time. Receptors expression levels are detected by western blotting method in kontrol and ketamine groups and also in the experiment groups generated by different L-glutamate doses. We evaluate the statistical significance of the data, SPSS 20 program. RESULTS: According to the statistical results we obtained in our study; metabotropic glutamate receptor levels (mGlu2, mGlu3) in both brain regions prefrontal cortex and striatum were decreased in high concentrations of L-glutamate, whereas no significant changes in the metabotropic glutamate receptor expressions in lower concentrations of L-glutamate. CONCLUSIONS: Decreasing expression level of metabotropic glutamate receptor at high concentrations of L-glutamate suggests that if intracellular calcium concentration state is primary related with autoreceptor function. Keywords: Ketamine, Schizophrenia, mGlu2, mGlu3, Glutamate

OP-024
DETERMINING OF NIS GENE EXPRESSION IN GASTRIC TISSUE OF MORBID OBESE INDIVIDUALS

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OBJECTIVES: Obesity is seen as one of the top ten (10) illness's listed by World Health Organization (WHO). Sodium Iodide Symporter (NIS) gene is a plasma membrane glycoprotein that mediates iodide uptake in thyroid glands, stomach, salivary glands, lactating mammary glands and intestine. The aim of the study is to determine the Sodium Iodide Symporter (NIS) gene expression level between morbid obese and non-obese individuals in gastric tissue. MATERIALS and METHODS: In this study, 33 individuals diagnosed with obesity and control group consisted of gastric tissue of 21 subjects with normal BMI were collected. RNA isolation, cDNA synthesis and qRT-PCR analyses were performed on the samples to determine NIS gene expression. TSH levels of morbid obese patients were compared to non-obese group. RESULTS: Demographic data of obese and control groups had significant differences (p=0,001) in age, weight and BMI. TSH levels of obese patients were compared to non-obese group. Statistically significant difference was found between preoperation of morbid obese and control groups (p=0,015) and between preoperation and postoperation of obese group (p=0,001). No significant difference (p>0.05) was observed between the obese and control groups in NIS gene expression levels. CONCLUSIONS: Because of the interaction between NIS and the other ion pumps, new studies are needed for better understanding the ion channel mechanisms. Additionally, as the obesity is influenced by genetic factors, the research will also contribute to the question of the familial transition while the samples are collected from the obese individuals. Keywords: Gene Expression,NIS, Obesity;

OP-025
NOVEL NOBOX GENE C. 1841C>T VARIANT IN A CASE WITH PREMATURE OVARIAN FAILURE

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OBJECTIVES: Premature ovarian failure is characterized by secondary amenorrhea and elevations of gonadotropin levels before age 40. In some cases, the first referral complaint may be primary amenorrhea. In the case of premature ovarian failure presenting with primary amenorrhea, it was aimed to share in the accompaniment of the literature due to the first detection of c.1841C> T, a novel variant in the NOBOX gene. MATERIALS and METHODS: A 26-year-old female patient with no systemic disease history and no dysmorphic findings admitted to medical genetic polyclinic for the complaint of primary amenorrhea. The patient was assessed for hormone levels and ultrasonographic findings. Chromosome analysis and molecular karyotyping were performed to exclude numerical and structural chromosomal anomalies for genetic diagnosis. Next generation sequencing method was used to detect variations in the FSHR gene and genes associated with premature ovarian failure. RESULTS: Karyotype and molecular karyotype evaluations were normal. In NOBOX (heterozygous c.1841C>T) and FSHR (homozygous p.S680N and heterozygous p.A307T), some variants were detected. Bioinformatic analysis showed that the variant in the NOBOX gene was a ‹damaging› according to SIFT and a ‹possibly damaging› according to PolyPhen. Genetic analysis was planned for the parents and elder sister of the case. CONCLUSIONS: NOBOX gene variants cause autosomal dominant premature ovarian failure type 5. In conclusion, we believe that this case should be considered as a premature ovarian failure type 5 due to the c.1841C> T variant detected in the NOBOX gene, and variants in the FSHR gene also contributed to the clinic.
Keywords: primary amenorrhea, premature ovarian failure, NOBOX, gene

OP-026
SINGLE-VARIANT ANALYSIS AND POLIGENIC RISC SCORE OF GENETIC TRAITS ASSOCIATED WITH WHEEZING FENOTYPE

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OBJECTIVES: The complex nature of pediatric respiratory diseases are attributed to the effect of numerous genetic features. In this study, association of GWAS confaunding risk alleles with different asthma phenotypes was investigated in Turkish pediatric patients. MATERIALS and METHODS: Five different genetic loci (GSDMB rs2305480, IL33 rs928413, RAD50 rs6871536, IL1R1 rs1558641, CDHR3 rs6967330) were genotyped in 919 Turkish children assessed by ISAAC (International Study of Allergy and Asthma in Childhood) Phase II questionnaire. Single variant and PRS (polygenic risk score) analysis were considered to dissect the role of risk alleles with respect to 42 traits related to respiratory diseases and their comorbidities. RESULTS: PRS based on the combined effects of the five investigated variants resulted association with the risk of waking up with wheezing (Beta = 0.94, p = 1.49*10-3). In the single-variant analysis, RAD50 rs6871536*C allele was associated with a 52% increased risk of bronchitis diagnosis (OR = 1.52, p = 1.01*10-3). We observed a suggestive association between GSDMB rs2305480*G and the risk of eczema: children carriers of the G allele have a 45% increased risk (OR = 1.45, p = 3.32*10-3). Finally, we tested the association of the variants with expression of the corresponding genes, detecting significant associations for all alleles analyzed. CONCLUSIONS: Present investigation contributed to a greater understanding of the genetics of respiratory diseases in non-European individuals and provided novel data regarding the genetics of childhood respiratory diseases and their comorbidities.
*This study was partly supported by Aksaray University Scientific Research Projects Unit.
Keywords: Respiratory Diseases, Allergy, Polygenic Risk Score

OP-027
EFFECTS OF RS1169289 & RS55834942 MUTATIONS OF HNF1A ON BIOCHEMICAL PARAMETERS IN MODY PATIENTS

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OBJECTIVES: In this study, we investigated the effect of rs1169289 (C> G) and rs55834942 (G> A) mutations of HNF1A gene (MODY3) on the clinical and biochemical parameters in patients with maturity onset diabetes mellitus of the young (MODY). MATERIALS and METHODS: HNF1A rs1169289 and rs55834942 mutations have been analyzed with next generation sequencing in 79 controls and 75 patients with MODY prediagnosed. RESULTS: There was no significant difference in the genotype frequencies of the rs55834942 mutation between the study groups ($p>0.05$), however, the rs1169289 mutant-G allele was found to be more frequent in patients with MODY than controls (Control:36.1% vs. MODY:53.3%, $p=0.029$). The rs1169289-CC genotype showed significantly higher triglyceride (TG), VLDL-K, ALT levels and lower HDL-C, sT4 and Creatinine levels ($p<0.05$) than the mutant-G allele in the controls. In addition, mutant-GG genotype was associated with high sT3 and low urea levels ($p<0.05$) when compared with C allele. In the MODY group, rs1169289-CC genotype was associated with higher VLDL-C and Creatinine levels ($p<0.05$) compared to mutant-G allele. Furthermore, control subjects with mutant-GG genotype had lower ALT and AST levels ($p<0.05$) than those with C allele. Serum total-cholesterol, TG, LDL-C and VLDL-C levels were significantly lower ($p<0.05$) in MODY subjects with the rs55834942 mutant-A allele than those with the GG genotype. Also, the control subjects with mutant A allele showed a higher insulin, AST and ALT levels ($p<0.05$) than those with the CC genotype. CONCLUSIONS: Our findings indicate that rs1169289 and rs55834942 mutations of HNF1A gene may affect both the risk of MODY and liver and kidney function.
Keywords: MODY3, HNF1A, rs116928, rs55834942

OP-028
IN VITRO INVESTIGATION OF PEG-TiO$_2$-PTX NANOTARGETED DRUG EFFECT ON BREAST CANCER

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OBJECTIVES: Breast cancer is one of the leading causes of mortality among women worldwide due to various factors such as aggressive invasion, early metastasis, resistance to existing chemotherapeutic drugs and high mortality. The aim of this study is 1) to increase the biocompatibility of the TiO2 nanoparticle by activating with PolyEthylene Glycol (PEG) to develop a new nanostructure system and 2) to determine anticancer activity of Paclitaxel (PTX) loaded PEG-TiO2 on MDA-MB-231 cell lines. MATERIALS and METHODS: TiO2 nanoparticles used in this study were synthesized, coated with PEG, and PEG-TiO2 nanostructure system was loaded with PTX. SEM, EDX, XRD, UV, Zeta Potential analyses of suspensions prepared at different concentrations of TiO2, PEG-TiO2, DOX, and PEG-TiO2-DOX nanostructured system were performed. The synthesized drugs were applied to the MDA-MB-231 breast cancer cell line and cytotoxic effect of these drugs were determined by using MTT method. The MDA-MB-231 cells were treated with different concentrations of TiO2 (5-100 µM) for 24, 48 and 72 hours. Apoptosis and necrosis were determined by fluorescence microscopy using the Hoechst 33258 (HO)/propidium iodide (PI) double staining. RESULTS: The effects of TiO2, PEG-TiO2, PTX, and PEG-TiO2-PTX on the MDA-MB-231 cell line were compared with the control group and IC50 values were determined for 24, 48 and 72 hours. CONCLUSIONS: In this study, it was shown that the effect of PEG-TiO2-PTX nanostructured system on MDA-MB-231 cell line was inhibitory to growth in cancer cells and induced apoptosis when compared with control group and PTX.
Keywords: Breast Cancer, MDA-MB-231, PEG-TiO2, PTX

Introduction

Breast cancer is the leading type of cancer in women worldwide [1]. Several therapeutic strategies including hormone blocking therapy, chemotherapy, and monoclonal antibodies, are used to treat breast cancer [2]. Paclitaxel, as the standardized first-line chemotherapeutics with platinum and anthracycline compounds, is bind to β-tubulin to reinforce the microtubule stabilization [3]. Unfortunately, the efficacy of paclitaxel therapy is limited by the development of paclitaxel resistance [4]. Drug resistance is, however, a major obstacle to successful chemotherapy. It has been reported that most initially responsive patients acquire a multidrug resistance (MDR) phenotype, and some patients Show MDR even with their first treatment regimen [5]. The treatment of cancer involves different therapies based on alkylating agents, antimetabolites, biological agents, etc.; but one of the principal problems is the side effects due to difficulties in differentiating between cancerous and normal cells, which produces systemic toxicity [6]. When exploring new strategies for the treatment of cancer, one possibility is the use of nanomaterials. For more than 30 years, nanomaterials have been used as pharmaceutical carriers to enhance the in vivo antitumor efficacy of drugs. The first studies in the 1970s used nanoscale drug carriers, such as liposomes entrapping antitumor pharmaceuticals. The development of nanostructured devices for drug delivery and controlled release constituted new antitumor chemotherapies [7]. The efficient carrier properties of NPs have enhanced their use in cancer treatment. NPs can be used to treat cancer by either passive or active processes. Photocatalyzed TiO2 NPs have been shown to eradicate cancer cells. TiO2 NPs can be maintained for a long time in the body, and they are nontoxic and stable without light irradiation [8]. Polyethylene glycol (PEG) is used in targeted drug delivery system because it is non-toxic, nonimmunogenic and non-antigenic. PEGylated nanocarriers have the ability to evade the reticulo endothelial system (RES) and extend the circulation time of encapsulated drugs in the bloodstream [9]. Our primary goal in this study is; To increase the biocompatibility of the TiO2 nanoparticle, it is necessary to activate it with PEG to develop a new nanostructure system. Secondly, the PTX drug is loaded onto this nanostructure system and applied to the MDA-MB-231 cell line to determine anticancer activity and the present study was to identify the paclitaxel binding PEG-TiO2 that are associated with MDR by using a newly developed line of MDA-MB-231 cell line.

Materials and Methods

TiO2 nanoparticles synthesize and Synthesize of PEGylated TiO2 nanoparticles: In this study, TiO2 were used as the nanoparticles. TiO2 nanoparticles were produced by a sol-gel process [9]. Titanium iso-propoxide (TIP) was used as the starting precursor to synthesize TiO2-nanoparticles using the sol-gel method. Polyethylene glycol was used to increase the stability of the TiO2 NPs and to coat the nanoparticles. 20 mL of TiO2 NP (0.5 mg / ml) was added to the PEG solution and stirred for 24 hours. The TiO2-PEG NPs were centrifuged at 12500 rpm for 30 minutes and were dispensed in 20 ml of ultrapure water.

Paclitaxelin binding to nanostructuring systems: PTX loaded onto TiO2-PEG was mixed with 0.5 mmol / L pH 8 overnight with TiO2-PEG solutions (~ 0.2 mg / mL). The unbound PTX was filtered through a 100 kDa filter and the washing procedure was repeated. The resulting TiO2-PEG-PTX was stored at 4 °C [10].

TiO2 nanoparticles and TiO2-PEG-PTX characterization: The morphologies of TiO2 were characterised by the XRD pattern. The UV-visible absorption of TiO2, TiO2-PEG and TiO2-PEG-PTX NPs was determined using a UV-visible spectrophotometer (UV-1280, Shimadzu, Japan).

Cell Culture: Cell lines including MDA-MB-231 cells were maintained in DMEM medium, containing 10% fetal bovine serum (FBS), penicillin (100 U/mL) and streptomycin (10 mg/L). Cells were grown in at 37 °C, 5% CO2 and 95 % air in a humidified incubator. For each cell line, 70-80% confluent cell culture flask was trypsinized and cells were seeded in 96 well plates.

Cytotoxic effect of TiO2 targeted drug in and MDA-MB-231 cells: The in vitro cytotoxicity of the TiO2, TiO2-PEG, TiO2-PEG-PTX and PTX against MDA-MB-231 cell lines was performed with the MTT 3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide) assay according to the Skehan's method [11]. Briefly, cells were trypsinized and plated into 96-well plates (Corning, USA) in 0.1 mL of complete culture medium at a density of 1 × 105 cells per well and allowed to attach for 24 h. 1 µL of test substance at concentrations ranging between 5-100 µg/ml were added into each well containing the cells. Test substance was diluted with sterilized water into the desired concentrations from the stock. The plates were incubated at 37°C with an internal atmosphere of 5% CO2. After 24, 48 and 72 h incubation, with different concentrations of compounds, MTT (5 mg/ml dissolved in PBS) 10 µl/well was added directly to all the wells and incubated for 2 hours at 37°C. The supernatant was carefully removed from each well and 100 mL of DMSO was added to each well to dissolve the formazan crystals. After mixing with a mechanical plate mixer for 15min, the absorbance of plates were recorded at 570 nm on a microplate reader (Bio-Tek, USA). All drug doses were parallel tested in triplicate and were performed at least 3 times; control samples were run with 1% sterilized water.

Hoechst 33258 (HO; Sigma) /propidium iodide (PI; Sigma) staining: The quantitative measurement of cell death was performed by Hoechst 33258 (HO)/propidium iodide (PI) staining for apoptosis and necrosis. The IC50 concentrations determined by MTT measurement of each of the PTX, TiO2, TiO2-PEG, TiO2-PEG-PTX drugs on the MDA-MB-231 cell lines implanted on the lamella in six well plates were washed with PBS after 48 hours and fixed with formaldehyde solution. MDA-MB-231 cells were again washed with PBS, incubated in 10 min darkness with addition of HO and PI. Finally, the cells were washed again with PBS and then the lamella mounting media was added and sealed. Results of cell morphology changes were visualized by fluorescence microscopy. In the fluorescence microscope, 5 different regions were photographed from the preparations examined in the appropriate wave length on the 40X objective. At least 200 cells were counted for each group and apoptotic and necrotic cell ratios were calculated [12].

Results and Discussion

Synthesis and characterization of TiO2 and TiO2-PEG-PTX nanoparticles: XRD in Figure 1 illustrated that the as-prepared TiO2 sample was in the anatase phase. XRD spectra indicated the presence of the main peaks at 2θ values of 25.420 (101), 37.890, 48.120, 55.160, 62.790 that are typical of the anatase phase of TiO2. The average crystallite size of TiO2 nanoparticles was calculated from XRD patterns (Fig. 1) using Scherrer's equation, and was found that the average crystallite size of TiO2 nanoparticles is around 12 nm.

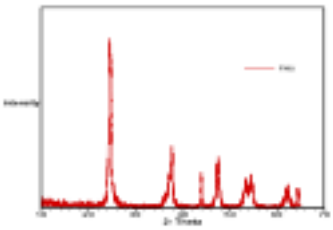

Figure 1. XRD pattern of the sol-gel TiO2 nanoparticles.

The characteristic peak of PTX occurred at about 250 nm. These results indicated that PTX is successfully loaded onto the TiO2–PEG NPs.

Cytotoxic effect of TiO2, TiO2 -PEG, PTX and TiO2-PEG-PTX targeted drug in and MDA-MB-231 cells:The cytotoxicity was estimated by MTT assay against both cell lines, since MTT assay can accurately measure metabolic activity of living cells via MTT reaction with mitochondrial dehydrogenases Figure 2 shows changes in cell inhibition for 24, 48 and 72 hours versus increasing concentrations of MDA-MB-231 cell lines. x-axis shows cell types and varying time points, while the y-axis shows the inhibition rates of cancer cells relative to the control. As you can see in Fig. 3 in parallel with the increase in TiO2, PEG-TiO2, PEG- TiO2-PTX and PTX concentration, there has been an increase also in the mortality rates of MDA-MB-231 breast cancer cells. The low IC50 value ''the high concentration of complex required for killing 50% of breast cancer cells" indicates that high cytotoxicity. Despite the time and dose dependent increase in the cytotoxicity of TiO2, PEG- TiO2, PEG- TiO2-PTX and PTX in MDA-MB-231 cells, IC50 values was observed for 24, 48 and 72 hours in the working range. TiO2-PEG-PTX, PEG-TiO2, TiO2, and PTX drugs on MDA-MB-231 cells were the most active for 72 h of incubation. In addition, the most active TiO2-PEG-PTX and IC50 values for 24, 48 and 72 hours were 46,58 µg/ml, 33,06 µg/ml and 28,34µg/ml respectively (Table 1).

Table 1: Comparison of IC50 values between TiO2-PEG-PTX, PEG- TiO2, TiO2, and PTX on MDA-MB-231 after 24 h, 48 h and 72 h of incubation.

	IC50 (µg/ml)		
Drugs	24h	48h	72h
TiO2-PEG- PTX	46,58	33,06	28,34
TiO2-PEG	76,26	67,97	56,53
TiO2	64,06	45,15	37,23
PTX	55,52	41,73	30,74

Hoechst 33258 (HO; Sigma) /propidium iodide (PI; Sigma) stainin: In this present study, morphological alterations of apoptotic cell death were detected by fluorescence microscope using HO and PI staining. The apoptosis rates of MDA-MB-231 cells treated with TiO2-PEG-PTX and PTX were found to be 68% and 57%, respectively. Whereas the necrosis rates of MDA-MB-231 cells treated with TiO2-PEG-PTX and PTX were found to be 5.8% and 4.3%, respectively. In addition, TiO2-PEG-PTX caused more apoptotic death than PTX, although it was not statistically significant.

Conclusion

In summary, modified PEGylated TiO2 drug carriers (TiO2-PEG-PTX) were developed to target drug delivery and treatment. This study demonstrates the possibility of using TiO2-PEG-PTX to inhibit the growth of breast cancer (MDA-MB-231) cells with therapeutic treatments. Apoptosis rate of TiO2-PEG-PTX were not found to be statistically significant, although an increased rate of apoptosis was detected after treatment with TiO2-PEG-PTX. Based on the results of this study, further in vitro and in vivo studies are needed. As a result, it may be a novel method of developing targeted drugs based on this molecule for cancer treatment.

Acknowledgements: This study was carried out at Cumhuriyet University's Advanced Technology Application and Research Center (CUTAM).

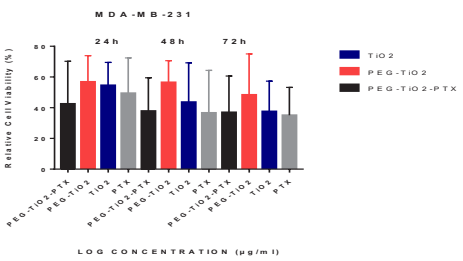

Figure 2. Cytotoxity activities of of TiO2-PEG-PTX, PEG- TiO2, TiO2, and PTX drugs on MDA-MB-231 cell line

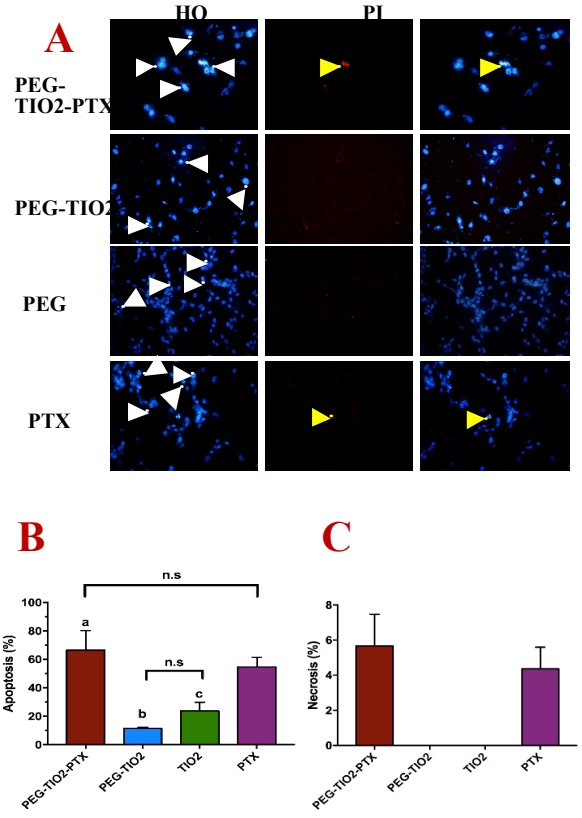

Figure 4. Representative HO/PI staining of MDA-231 cells (A). White and yellow arrows indicate apoptotic and necrotic cells, respectively. Percentage of apoptotic (B) and necrotic cells (C) according to drug types. Data are presented mean ± SD from 200 cells for each group. a,b,cp <0.05. n.s: not significant

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OP-030
ORGANOTOXIC EFFECTS OF DEGUELIN AND DOCETAXEL IN EXPERIMENTAL LUNG CANCER MODEL

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OBJECTIVES: In the experimental in vivo metastatic lung cancer model,it is the investigation of organotoxic effects of Docetaxel which are used in standard treatment,and chemotherapeutic candidate molecule Deguelin. MATERIALS and METHODS: Experimental design;Control,Cancer, Cancer+DMSO, Cancer+Deguelin, Cancer+Docetaxel, Cancer+Combination. A metastatic lung cancer model was established with LewisLungCarcinoma cell line in 42adult C57BL/6 mice(f). After the injection (7days) of cancer cell lines,the doses set in the cell lines were applied 6 times in advance to the groups every day and sacrification was performed on the determined day. Heart, spleen, kidney, liver tissues were homogenized in buffer solution with Bullet Blender device. Oxidative stress index (OSI) and superoxide dismutase (SOD) enzyme activity were measured using colorimetric method to determine organotoxiceffects. Tissue sections (heart, spleen, kidney, liver and stomach) of all groups were stained with Hematoxylin&Eosin and examined for ischemia and necrosis.Significance among the groups was determined byANOVA, and Holme-Sidak analysis for post-hoc comparisons. Statistical significance was accepted as $p<0.05$. RESULTS: Tumor development in the treatment group with Deguelinwas statistically significant lower than the other groups. Allsubjects had macroscopically abnormal appearance inthe heart tissues.There was involvement inGIS in the cancer group. In the Docetaxel group, slowing and weakness were observed inthe treatment-induced movements and hemorrhage was seen in some subjects. OSI and SOD enzyme activity analyzes on tissue homogenates showed no statistically significant difference between groups in tissues other than kidney and spleen tissues($p>0,05$). Histochemical analysis showed noischemia or necrosis inany group. CONCLUSIONS: Thedosesof Deguelin, achemotherapeutic candidatemolecule and Docetaxel whichis appliedin standard therapy inlung cancer have been identifiedfortheexperimental animal.Intheexperimentalmodel inwhichthese determineddoseswereapplied, it was observed that the agentsused by looking at this tochemicalandoxidativestressmarkerswerenotsuperiortoeachotherintermsof organotoxic effects. Although alone or combination as in vivo usage of Deguelin does not result in an additional organotoxic load,it maybe an agent candidate for thetreatment of lungcancer.
Keywords: Deguelin, Docetaxel, Organotoxic Effect, Experimental Metastatic Model of Lung Cancer, C57BL, Lewis Lung Carcinoma Cell Line (LLC)

OP-031
THE EFFECT OF COMBINED TREATMENT OF FK506 AND AKT INHIBITORY ON PDGF-INDUCED PC3 CELLS INVASION

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OBJECTIVES: We aimed to show the effects of Tacrolimus (FK506) and Akt inhibitory (Akti) on the PC3 cells invasion that induced with Platelet Derived Growth Factor (PDGF) which has important role on cancer cell proliferation. MATERIALS and METHODS: Doses of drugs were determined as PDGF (100 ng/ml), Akt inhibitörü (5 µM) ve FK506 (1 µM). Wound Healing assay and matrigel transwell chamber assay were used to show the invasion of PC3 cells. Experimental groups were determined as; Control, PDGF, Akti, FK506, PDGF+Akti, PDGF+FK506, Akti+FK506 and PDGF+Akti+FK506. The Results were obtained by imaging with a light microscope (Leica, DMIL LED, Germany). RESULTS: Looking at the Wound Healing assay results, it was shown that Akti and FK506 treatment reduced the invasion while PDGF promoted the PC3 cells invasion. Combined treatment of FK506 with Akt inhibitory had effective results

against to invasion. According to transwell invasion results, it was shown that combined treatment of FK506 and Akti blocked the PC3 cells invasion and these results supported the Wound Healing assay results. It was also shown that there were less number of invasive cells in FK506+Akti treated group than other groups. CONCLUSIONS: As a result of this study, PDGF-induced PC3 cells invasion can inhibited by Akt inhibitor and FK506 and also it is understood that combined treatment of these two drugs will give effective results against invasion.
Keywords: PDGF, FK506, Akt inhibitory, invasion, PC3

OP-032
THE EFFECTS OF PHENOTHIAZINE DYES ON GAG-MODIFIED APLP2 AND β-SECRETASE 1 LEVELS IN HS766T CELLS

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OBJECTIVES: Amyloid precursor-like protein 2 (APLP2) and its glycosaminoglycan (GAG)-modified form are highly expressed in pancreatic cancer cell lines. Evidences have shown that inhibition of APLP2 and its cleavage enzyme, β-secretase decrease the growth of pancreatic cancer cells. In present study, the inhibitory effects of two phenothiazine dyes [toluidine blue O (TBO) and methylene blue (MethB)] were determined on β-secretase (BACE1 and BACE2) activity in pancreatic cancer cells (Hs766T). Also, the effects of both dyes were investigated on GAG-modified APLP2 and BACE1 levels in Hs766T cells. MATERIALS and METHODS: Hs766T cells were treated with TBO or MethB (0-40 μM) for 24 hours. The inhibitory effects of both dyes on β-secretase activity were evaluated with a fluorometric BACE assay kit in cell lysates. Also, the levels of GAG-modified APLP2 and BACE1 were analyzed using Western blot. The results were compared to those obtained with control cells. RESULTS: β-secretase activity was significantly inhibited by 30% and 44% at 10 μM and 20 μM MethB, respectively. GAG-modified APLP2 level was reduced by 34% at 20 μM MethB. However, BACE1 levels were not significantly changed by MethB. On the other hand, GAG-modified APLP2 level was reduced by 35% while BACE1 level was decreased by 44% at 20 μM TBO. β-secretase activity was not significantly altered by TBO. CONCLUSIONS: TBO and MethB may show useful effects in the treatment of pancreas cancer treatment.
Supported by the grants from the Hacettepe University Scientific Research Projects Coordination Unit (HUBAB, TSA-2017-13929) and TUBITAK (SBAG-113S256).
Keywords: APLP2, β-secretase, Phenothiazine dyes, Pancreas cancer

OP-033
INVESTIGATION OF SINERGIC EFFECT OF RHO KINASE INHIBITOR AS 1892802 AND PACLITAXEL ON BREAST CANCER

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OBJECTIVES: Cancer is one of the most important health problems in worldwide and the treatment approaches are still not at desirable levels. Conventional anti-cancer agents may cause systemic toxicity and drug resistance; to overcome these hurdles, drug combinations have been widely employed in therapy. In this study, to determine whether AS 1892802 can enhance chemosensitivity to paclitaxsel, the combined effects of AS 1892802 with paclitaxel on MDA-MB-231 cells were investigated. MATERIALS and METHODS: MDA-MB-231 cells were treated with Paclitaxel and AS 1892802 alone at 0.01, 0.1, 1, 10 and 100 μM concentrations. Next, the effect of inhibitor and Paclitaxel on cell viability was evaluated by XTT method. Based on the IC50 values, increased concentrations of AS 1892802 (0.005, 0.05, 0.5, 5 and 50 μM) were applied to the cells in combination with a constant concentration of 7.5 μM Paclitaxel. In addition, the effects of paclitaxel, inhibitors and their combinations on the apoptosis have been investigated using flow cytometry. RESULTS: Experimental results exhibited that the combination of AS 1892802 and Paclitaxel showed significant cytotoxic and apoptotic effects on MDA-MB-231 cells. While IC50 values of AS 1892802 and Paclitaxel were calculated as 89 and 9.55 μM for 48 h respectively, the IC50 value of their combination was calculated as 2.17 μM. Total apoptosis was also measured as 12.39%, 45.88% and 55.7% for 1 μM AS 1892802, 1 μM Paclitaxel and 0.5 μM their combination, respectively. CONCLUSIONS: Experimental data indicate that AS 1892802 significantly enhances the chemotherapeutic effect of paclitaxel on breast cancer cells.
Keywords: Breast Cancer, Rho Kinase inhibitör, Synergic Effect, Apoptosis

Introduction
Today, cancer is a very serious disease and the second-leading cause of death all over the world (1). Among these, breast cancer is one of the most commonly-diagnosed type of cancer among women. Although there have been significant advances in the diagnosis and treatment of breast cancer in recent years, treatment-related problems still continue and survival is not at the desired level (2). Chemotherapy is an important option in the treatment of breast cancer and taxanes, especially PTX, have widely been used in early and metastatic breast cancer therapy since the 1990s. However, resistance to PTX may develop some patients especially advanced cases during treatment and limits its clinical application (3). Hence, novel therapeutic strategies for breast cancer treatment are urgently needed to overcome chemoresistance. Combined treatment by using some sensitizing agents is an important strategy to overcome the drug resistance and there are numerous combination studies in the literature (3, 4, 5).
Rho-kinases (ROCKs) play key roles in various biological processes such as formation of stress fibers, regulation of calcium sensitivity of smooth muscle contraction, cell proliferation, and cell migration. Therefore, ROCK inhibition may be used as a potential treatment strategy in many disease including cancer (4). The anti cancer effect of ROCK inhibition has been shown in many studies, especially in recent years (6, 7) . Hence, in this study, we aimed to evaluate the effect of PTX combined with Rho kinase inhibitor AS 1892802 on MDA-MB-231 cells in an attempt to establish effective novel combination. To the best of our knowledge, this is the first study to have exhibited the efficacy of AS 1892802 + PTX combination on breast cancer cells.
Material and Methods
In-vitro cytotoxicity assay, Cell culture: The cytotoxicity of the AS 1892802 alone and combine with PTX was tested against human breast cancer MDA-MB-231 cell line (Manassas, VA, USA). The cells were cultured in DMEM (Gibco Thermo Fisher Scientific) containing 10% FBS, 1% L-glutamine, 100 IU/mL peni¬cillin and 10 mg/mL streptomycin (Gibco Thermo Fisher Scientific) in 25 cm2 polystyrene flasks and maintained in a humidified atmosphere with 5% CO2 at 37 °C. Growth and morphology were moni¬tored and the cells were passaged when they had reached almost 85-90% confluence.
Cell viability assay: Cell viability was evaluated using the XTT (2,3-bis-(2-methoxy-4-nitro-5-sulfophenyl)-2H-tetrazolium-5-carboxanilide) assay (Roche Diagnostic, Germany) against the MDA-MB-231 cells. AS 1892802 and PTX were dissolved in DMSO and stock solutions were prepared. Then these stocks were diluted in DMEM and various concentrations were prepared prior to treatment. The MDA-MB-231 cells were seeded in 96-well plates at a density of 1 × 104 cells per well in 100 μL whole DMEM and were allowed to attach overnight before treatment. Next day, the cells were either allowed to grow in media alone or in media containing increasing concentrations of AS 1892802, PTX, or the combination of the two agents and incubated for 48 h. At the end of the incubation period, for cytotoxicity, 50 μL XTT labeling mixture were added to each well and then the plates were incubated at 37°C for four h. Finally, the absorbance of XTT-formazan was measured using a microplate (ELISA) reader at 450 nm against the control. All experiments were performed in three independent experiments and the cell viability was expressed in % related to control (100% of viability).
Apoptosis assay: The extent apoptosis was examined using the Muse Annexin V/Dead Cell (Merck Millipore) assay, as described in the manufacturer's instructions. Briefly, MDA-MB-231 cells were treated with AS 1892802 (1 μM), PTX (1 μM) and their combination (0.5 μM + 0.5 μM) for 48 h.
After that, the cells were collected, diluted with PBS containing 1% FBS and incubated with 100 μL Muse™ Annexin V & Dead Cell reagent (Merck Millipore) for 20 min at room temperature in the dark. The events for live, dead, early and late apoptotic cells were analyzed by Muse™ Cell Analyzer. Data of apoptosis induction by AS 1892802, PTX and the combination of the two agents were calculated from three independent experiments.
Statistical Analyses: Statistical analysis was carried out using IBM SPSS Statistic 25 version. All data are expressed as mean ± SEM. Groups were compared statistically using general linear models of analysis of variance (ANOVA) followed by Tukey test and t-test when appropriate. Also, Kruskal-Wallis and Mann-Whitney U tests have been used when the parametric test assumptions have been violated. $P<0.05$ was considered statistically significant.
Results and Discussion
Inhibition of Cell Proliferation: In the present study, XTT cell proliferation assay was performed to assess antiproliferative effects of AS 1892802 alone and combined with PTX on MDA-MB-231 cells for 48 h. Firstly, to determine the cytotoxicity of AS 1892802 alone, growing cells were treated with increasing concentrations of AS 1892802 and incubated for 48 h. Then, to determine the IC50 value of PTX on MDA-MB-231 cells, PTX was administrated on MDA-MB-231 cells at various concentrations and incubated for 48 h. According to experimental results, AS 1892802 alone did not show significant antiproliferative effect except for high concentrations againist MDA-MB-231 cells. Moreover, we were interested if AS 1892802 might affect the sensitivity of MDA-MB-231 cells towards frequently used antineoplastic drug PTX. We hence treated MDA-MB-231 cells with AS 1892802 (0.005, 0.05, 0.5, 5 and 50 μM) and PTX (7.5 μM constant concentration) combination for 48 h. As presented in Fig 1., an important loss of viability was observed in AS 1892802 + PTX combination at 48 h. The IC50 values calculated as 89, 9.55 and 2.17 μM for AS 1892802, PTX and their combination, respectively for 48 h. These results suggested that when compared with PTX treatment alone, AS 1892802 combination significantly enhanced the cytotoxicity of PTX in MDA-MB-231 cells. In the literature, various Rho kinase inhibitors alone or combine with some agents have already been found to be cytotoxic on various cancer cells such as, servical and non-small cell lung cancer (8, 9).
AS 1892802-PTX Combination Induced Apoptosis of MDA-MB-231 Cells Synergistically: In this study, it was also investigated whether the AS 1892802-PTX combination induce apoptosis in MDA-MB-231 cells. Prior to apoptosis experiments, the cells were treated with the AS 1892802 (1 μM), PTX (1 μM) and AS 1892802 + PTX (0.5 + 0.5 μM) combination for 48 h. Afterwards, Annexin V binding assay was performed to evaluate the effects of the combination on apoptosis of breast cancer cells. In this assay, four populations of cells can be distinguished, namely non-apoptotic cells, Annexin V (-) and 7-AAD (-), early apoptotic cells, Annexin V (+) and 7-AAD (-), late stage apoptotic cells, Annexin V (+) and 7-AAD (+) and necrotic cells, Annexin V (-) and 7-AAD (+). As seen

in Fig. 2, when compared to 0.1% DMSO-treated control, AS 1892802 and PTX alone groups, the statistically significant apoptotic effects were observed from combination group ($p<0.05$). Percent of total apoptotic cells were 10.45%, 34.67%, and 39.53% for AS 1892802, PTX and their combination at 48 h respectively. These data indicate that when compared to AS 1892802 and PTX alone, their combination is able to induce as mainly early and late apoptosis in MDA-MB-231 cells. Moreover, this result consistent with the data obtained from cell proliferation assay in Fig.1.

Conclusion

In conclusion, our results show that AS 1892802 combined with PTX may be an effective and feasible strategy to enhance the effects of chemotherapy in patients with breast cancer. However, further studies are needed to verify these anti cancer effects.

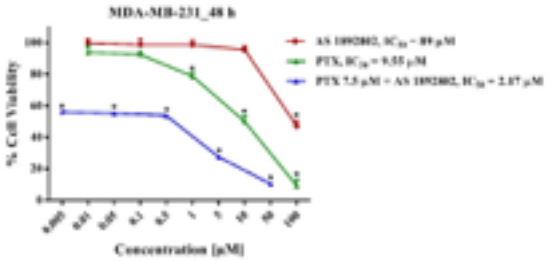


Figure 1. AS 1892802 enhances the cytotoxic effect of PTX on MDA-MB-231 cells.

(A)

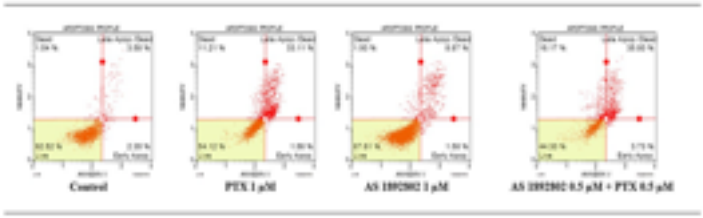
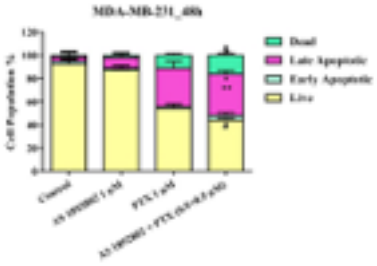


Figure 2. (A) Apoptotic effects of AS 1892802, PTX and their combination on MDA-MB-231 cells.

Figure 2. (B) Percentages of early and late apoptotic cells following the treatments. Statistically significant differences are &, *, # $p < 0.05$, ** $p>0.05$ from values compared to AS 1892802 and PTX group.

(B)



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OP-034

DETECTION OF CIRCULATING TUMOR CELLS (CTCS) IN VARIOUS TYPES OF CANCER

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OBJECTIVES: Cells that are found in the circulation during tumor metastasis are called circulating tumor cells (CTCs). The counting and characterization of CTCs are promising for personalized therapies. Due to CTCs are the initiators of metastasis, they have potential to alter the course and outcome of the disease. In this study, it was aimed to evaluate whether CTCs could be used as tumor markers in various types of cancer (bladder, larynx, lung, prostate).

MATERIALS and METHODS: In this study, the detection of CTCs was performed with our modified method. 7.5 mL peripheral blood sample was obtained from bladder, larynx, lung, prostate cancer patients and healthy volunteers. We performed a density based ficoll gradient centrifugation and an immunomagnetic enrichment (with CD45-negative selection). A flow cytometer based on the expression of the epithelial cell adhesion molecule (EpCAM) and CK 14,15,16,19 were used for the detection of CTCs.

RESULTS: According to the results of our study, CTCs were detected in the samples of bladder, larynx, lung and prostate cancer patients. 13 CTCs in bladder cancer, 7 CTCs in laryngeal cancer, 13 CTCs in lung cancer and 9 CTCs in prostate cancer were detected. However, no CTCs were detected in healthy volunteers.

CONCLUSIONS: This study shows us CTCs might be used as a predictive biomarker of some cancer types. With further studies, the metastatic process can be better understood and new approaches can be developed for cancer diagnosis.

Keywords: Cancer, CTC(s), Flow cytometer

OP-135

A DISCUSSION STUDY FOR LABORATORY PROCESS EDUCATION DEMANDS AND NEEDS OF OUR TECHNICIANS

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OBJECTIVES: Laboratory technicians have a role in the continuous functioning of preanalytical, analytical and postanalytical phases.

Sample acceptance, rejection, the correct description of the sample, proper management, storage, true preparation of analytical instruments, the meaning of the tests in the post analytical process, panic values, interfering substances.

it is necessary for good laboratory practices that all laboratory staff have adequate knowledge in the matter of correct pre-approval of results.

Our technicians have theoretical information requests.It is planned to conduct a survey with the aim of analyzing the needs and determining the training programs.

MATERIALS and METHODS: 20 question and multiple choice options were created, reflect about the most common preanalytical and analytical issues. The questionnaire has been directed into 36 laboratory technicians in İKÇÜ Atatürk Education and Research hospital.

General statements were related to sample quality, correctly samples collecting, blood-taking errors

sample storage conditions, frequent preanalytical errors. Specific questions were related to impact of hemolysis interferences, relation of hematocrit with hemoglobin, calculated biochemical tests, markers, laboratory tests that require urgent work.

RESULTS: Since 70% of the respondents do not know the concept of full clot retraction, the blood is centrifuged early and fibrin formation in the serum continues. It was not known by the 50% participants that calcium and potassium could be affected in EDTA-induced calorie.

CONCLUSIONS: It is necessary to education to all laboratory technicians.

In the course of our work, laboratory quality studies and the effect of training would be evaluated by indicators.as sample rejection rate, time to yield, accurate sample storage etc.

Keywords: laboratory education, survey study, good laboratory practices

OP-035
DETERMINATION OF CIRCULATING TUMOR CELLS BY FLOW CYTOMETRY IN THE BLADDER CANCER PATIENTS

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OBJECTIVES:OBJECTIVES: The current study aimed to detect of circulating tumor cells (CTCs) in 7.5 mL blood samples of bladder cancer patients by flow cytometry. MATERIALS and METHODS: MATERIALS-METHODS: Fresh venous blood was taken from patients before and after surgery and the peripheral blood mononuclear cells were isolated with the density-gradient centrifugation method. Direct immunofluorescence assay was performed using monoclonal antibodies against cell surface markers. Sorting was carried out with BD FACS Aria™ III Cell Sorter. RESULTS: RESULTS: All the patients in this prospective study had detectable CTCs and no CTCs were evaluated on controls. Median CTC count before the operation was 6.0 (min-max: 4.0 to 21.0) and after the operation was calculated as 0.0 (min-max: 0.0-5.0). CONCLUSIONS: CONCLUSION: The results are promising in terms of CTC detection in bladder cancer by flow cytometry. Pre- and post-operative CTC counts as predictive and prognostic biomarker dramatically change in this study.
Keywords: Bladder Cancer, Circulating Tumor Cells, Flow Cytometry

OP-036
COMPARISON OF INDUCTION OF PROTOPORPHYRIN IX SYNTHESIS IN 2D AND 3D CELL CULTURE

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OBJECTIVES: To understand complex tumor biology, three dimensional multicellular tumor spheroids (3D MTS) are advantageous compared to 2D cell culture models. The aims of this study are to induce synthesis of Protoporphyrin IX, which is an endogenous porphyrin and photosensitizer, via incubation of MCF-7 cells with δ-aminolevulonic acid and to compare phototoxicity based cell viability in 2D and 3D models after photodynamic therapy (PDT) application. MATERIALS and METHODS: By employing liquid top layer method, MCF-7 cell line is grown to MTS having 100-150 µm diameters at the end of the 4th day. MTS were incubated with different concentration of ALA (0.5 mM-2 mM) and then were exposed to near-IR light (>630 nm, 10j/cm2). Following 24h incubation period, MTS' cell viability is tested. The same procedure is applied to MCF7 cells that are grown in 2D cell culture. RESULTS: Cell uptake of ALA and consequently, synthesis of Protoporhyrin IX greatly varied in two distinctive (2D and 3D) models. Phototoxicity, which is generated as a result of exposure to same amount of light dose, and cell viability were greatly different in two models. CONCLUSIONS: As a result of complex structural organization of MTS, diffusion of ALA to the MTS structure as well as cell uptake of it is fairly low. Due to structural obstacles to deliver light to the hypoxic center of MTS, cell viability of MTS in 3D was higher than 2D model. Obtained results could be used to acquire valuable information regarding tumor structure and biology, drug delivery systems, drug diffusion and distribution into the tumor.
Keywords: Protoporhyrin IX, 3D cell culture, δ-aminolevulonic acid (ALA), Heme synthesis, Photodynamic Therapy (PDT)

OP-037
DRUG CARRYING NANOPARTICLES PREPARED WITH GREEN SYNTHESIS METHOD FOR TARGETED CANCER THERAPY

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OBJECTIVES: Doxorubicin is an anticancer agent and have lots of side effects. Curcumin can act as an inducer for p53-dependent apoptosis and enhance the activity of doxorubicin. Drugs can be addressed to target area with magnetic nanoparticles thus increases bioavailability and decreases side effects. Green synthesis method enables nanoparticle production utilizing vegetable extracts. The aim of this work is development of doxorubicin and curcumin loaded magnetic nanoparticles through green nanotechnology. MATERIALS and METHODS: Magnetic nanoparticles were prepared using Camellia sinensis extract and $FeCl_3$ solution at different ratios. These structures were characterized with XRD, SEM, EDX and FTIR. Doxorubicin and curcumin solutions at varying concentrations were added into nanoparticles for encapsulation and loaded drug amounts were determined spectrophotometrically. The resulting nanoparticles were investigated with SEM and FTIR. In vitro drug release from nanoparticles was performed using dialysis membrane tubings at pH 7.4 and 37°C. RESULTS: It was found that nanoparticles have ideal morphology (~50-60 nm), magnetite core and capped with flavanoids. Encapsulation efficiency of doxorubicin and curcumin were 73% and 95% respectively. Almost no change was dedected in morphology of drug loaded nanoparticles. In addition controlled drug release profile (~%10 release at 24 h) was achieved. CONCLUSIONS: Flavonoids provides the reduction of Fe^{3}, formation of magnetites and coating of nanoparticles. This green synthesis method are low cost. Obtained nanoparticles could be thought as magnetically targeted drug delivery system for cancer therapy. It can be suggested that nanoparticles could have cytotoxicity on especially lung and ovarian cancer and this activity could increase with synergistic effect of curcumin.
Keywords: Cancer, targeted therapy, magnetic nanoparticle, doxorubicin, curcumin, green synthesis

OP-038
ANTICANCER EFFECT OF CUCURBITACIN B LOADED HYBRID NANOCARRIERS ON HUMAN BREAST CANCER CELLS

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OBJECTIVES: Breast cancer is an important health problem in recent years, and the studies including anticancer effects of natural derived compounds have great importance as well as the researches based on the investigations of mechanisms of cancer development. Cucurbitacin B is a triterpenoid derived natural compound which is present in plants and the studies report that this compound display antiproliferative effciency in various cancer cells. The aim of this research is to develop various nanoparticle formulations loaded with cucurbitacin B, and to investigate their antiproliferative effects on human breast cancer cells. MATERIALS and METHODS: Lipid polymer hybrid nanoparticles as drug carrier systems of cucurbitacin B were prepared by using Design of Experiment approach and optimum formulation were selected based on the 3^2 factorial design. The anticancer activity of the optimum hybrid nanoparticles in MCF-7 and MDA-MB-231 cells were evaluated.
RESULTS: Optimum hybrid formulation was selected according to its desired particle size and highest encapsulation efficiency. The results showed that hybrid formulation significantly inhibited cancer cell proliferation in a dose dependent manner. The annexin V-binding studies performed through flow cytometry and fluorescence imaging have also showed that the hybrid formulation induced apoptosis of breast cancer cells.
CONCLUSIONS: The hybrid nanocarriers developed in this research were observed as promising drug carriers for the delivery of cucurbitacin B against breast cancer treatment.The strong anticancer effects against breast cancer cells indicated that these nanocarriers may be potential candidates for cancer treatment.
Acknowledgments: This study is supported by The Scientific and Technological Research Council of Turkey (Tübitak) with 117S131 project number.
Keywords: Cucurbitacin B, MCF-7, MDA-MB-231, Lipid Polymer Hybrid Nanoparticles, Anticancer, Apoptosis

OP-039
INVESTIGATION OF THE CYTOTOXIC, GENOTOXIC & APOPTOTIC EFFECTS OF CAPSAICIN ON GASTRIC CANCER

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OBJECTIVES: Gastric cancer is the first in the world for both men and women. Today, the search for alternative treatments continues because current drugs and combinations are inadequate in the treatment of cancer. In our country, it is reported that Isot(Capsicum annuum), especially grown in the Şanlıurfa-Region and used as a spice, has antioxidant, anti-inflammatory, antimicrobial and anticancer effects. The aim of our research; investigation of cytotoxic, genotoxic and apoptotic effects of different concentrations of capsaicin and isot extracts on gastric cancer.
MATERIALS and METHODS: In our study, Isot collected from Şanlıurfa-region were extracted with ethanol and methanol. The total phenol-flavonoid, anthocyanin&antioxidant levels of the extract were measured. The amount of capsaicin, the active ingredient in the extracts, was determined by HPLC. Different doses of Capsaicin and Isot extracts were applied to gastric adenocarcinoma cells(AGS) and normal-epithelial-cells(CCD1079Sk). After incubation for 24&48h, cytotoxic, genotoxic, apoptotic and ROS activities were analyzed.
RESULTS: Cytotoxicity was enhanced by extracts and capsaicin in AGS&CCD1079Sk cells in a dose-dependent-manner. Extracts and capsaicin also induced apoptosis, DNAdamage, and increased ROS. Extracts and capsaicin inhibited some apoptotic proteins, resulting in apoptosis through regulation of proapoptotic and antiapoptotic proteins. It has been found that ethanol extract has more cytotoxic genotoxic and apoptotic effects than methanol extract and capsaicin that this effect is probably associated with their pro-oxidant and ROS production capacity.
CONCLUSIONS: As a result, it has been found that high doses of Isot&Capsaicin on cancer&ealthy cells have cytotoxic, genotoxic&apoptotic effects with pro-oxidant effect. Cancer cells are more-sensitive than healthy-cells. Thus may have cancer potential.
Keywords: Gastric Cancer, Capsaicin, Isot Pepper, Apoptosis

OP-040
DETECTION OF MT-ND5 AND MT-CYB MUTATIONS IN THE HT25 AND HCT 116 COLON CANCER CELL LINES

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OBJECTIVES: Human mitochondrial DNA (mtDNA) is a circular, double-stranded DNA molecule that containing 37 genes. It has been determined that tumor development is related with mtDNA mutations. Recent studies have identified the presence of mtDNA mutations in many types of cancer, including colon cancer. In this study, we aimed to determine the presence of variations of mitochondrial NADH dehydrogenase 5 (MT-ND5) and mitochondrial cytochrome b (MT-CYB) genes in the mtDNA of HT25 and HCT 116 colon cancer cell lines. MATERIALS and METHODS: mtDNA was isolated from HT25 and HCT 116 colon cancer cell lines and MT-ND5 and MT-CYB genes were amplified by polymerase chain reaction (PCR). DNA direct sequencing was done using forward and reverse primers. RESULTS: The mutational analysis of the mtDNA revealed the presence of A15366G, C15367G, T15567d, T15573d variations in CYB gene, T12574C, T12575C, A12579C, A12584d, A12587G, C12588G, T12643C, T12650C, T12706C, T12881C, A12909d, A12926d, G12940C variations in ND5 gene in HT25 cell line. In the mutational analysis of mtDNA in the HCT 116 cell line determined the presence of T15609C, A15610AT variations in the CYB gene. In contrast, no mutation was detected in the ND5 gene. CONCLUSIONS: It was concluded that novel MT-ND5 and MT-CYB mutations could be found in colon cancer cell lines. Thus, these mutations might play an important role in colon cancer prognosis. However, whether the mitochondria dysfunction contribute to colon cancer needs to be further investigated.
Keywords: Colon cancer, mtDNA, MT-ND5, MT-CYB

OP-041
ROLE OF ENDOTHELIN-1 ON PROLIFERATION AND INVASION OF HCT116 CELLS

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OBJECTIVES: The aim of this study is to explore the role of ET-1 in HCT116 proliferation and invasion. Anti-proliferative and anti-invasion effects of the non-selective dual ETA/ETB receptor antagonist Bosentan was determined on HCT116 cell line in vitro MATERIALS and METHODS: Cells were seeded into the plates and 24 h after the cells were incubated with or without 10-4M BOS for 1-4 days. The wound healing, MTT and Crystal Violet Assays were performed. RESULTS: Bosentan exert anti-proliferative and anti-invasion effect on HCT116. Important inhibitory effects on invasion and wound healing of HCT116 cells were showed by the Bosentan group compared to the Control group. CONCLUSIONS: The major findings of current study were that critical role of Bosentan on proliferation and invasion of HCT116 cells.
Keywords: Bosentan, HCT116, invasion, proliferation

OP-042
THE EFFECT OF N-ACETYLCYSTEINE ON OXIDATIVE STRESS INDUCED BY CCL4 HEPATOTOXICITY IN THE RATS

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OBJECTIVES: This study was performed to form an oxidative stress model by hepatotoxic agent carbon tetrachloride (CCl4) and to investigate the effects of N-acetylcysteine (NAC), a powerful antioxidant, on the oxidative stress induced by hepatotoxicity, through myeloperoxidase (MPO) activity and protein oxidation. MATERIALS and METHODS: Wistar albino male rats were divided into four groups as CCl4, NAC, CCl4-NAC and Control, each of ten rats. CCl4 (1,0 mL/kg rat weight/per day, ip) as a single dose and NAC (200 mg/kg rat weight/per day, ip) as three doses were applied to corresponding groups. Hepatotoxicity was identified with histopatologic methods. MPO activity was determined in plasma and protein carbonyl compounds (PCC), one of the indicator of protein oxidation, were measured in serum samples. RESULTS: There was no significant difference between Control and NAC groups, in terms of measured plasma MPO activity or serum PCC levels. When compared to these groups, MPO activity and PCC levels were found to be higher in the CCl4group. In the CCl4-NAC group, CCl4-induced hepatotoxic lesions such as steatosis, inflammation and necrosis were remarkably improved in the presence of NAC, and also NAC significantly lowered MPO activity and PCC levels, so that the values were reached to those of Control and NAC groups. CONCLUSIONS: As reflected by higher MPO activity and PCC levels, oxidative stress, induced by CCl4 hepatotoxicity, may be prevented by the presence of NAC. Thus, NAC addition may be offered to the treatment protocols of several diseases, in the pathogenesis of which oxidative stress exist.
Keywords: Carbon Tetrachloride, Myeloperoxidase, N-acetylcysteine, Protein Carbonyl Compounds, Rat.

OP-043
HORMETIC STRESS RESPONSE OF DIETARY PHYTOCHEMICALS IN HEALTHY AGING

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OBJECTIVES: Hormesis is defined as any circumstance in which chemical and environmental factors give beneficial effect to the cells at low doses while causing harm for them at high doses. The stress responses observed in mammalian cells can be classified as heat shock, unfolded protein, autophagic, DNA damage, antioxidant and sirtuin responses at the intracellular and molecular levels. Factors which strengthen the hemodynamic structure causing low-level molecular damage and activating one or several stress response pathways are called hormetin. Dietary phytochemicals are potential nutritional hormetins. Resveratrol, curcumin, epicatechin, isothiocyanates, ferulic acid can form stress responses causing the stimulation of kinases and transcription factors. MATERIALS and METHODS: This presentation will focus on the increasing quantity and content of the related literature in the last 10 years. We did a Google Scholar research for articles published between 2008-2018 years with the keywords of “hormesis”, “nutrition”, “dietary phytochemicals” and “aging”. The search revealed 1,860 articles (nearly 48% of these were in the last 3 years). RESULTS: We throughly investigated the literature with the aim to explain the stress response effect mechanisms of the dietary phytochemicals as nutritional hormetins and as important components that affect the delay of age-related diseases, thus provide healthy aging and increase the lifespan.
CONCLUSIONS: Our search results indicate that these phytochemicals are related to nuclear factor erythroid 2 and sirtuin pathway, heat shock response activation and nuclear factor kappa-B down regulation. The mechanisms of action of important phytochemicals and stress response pathways will be discussed in the light of data obtained in recent years.
Keywords: hormesis, dietary phytochemicals, healthy aging

OP-044
TAU PROTEIN AND 8-ISO-PROSTAGLANDIN IN CHILDREN WITH ATTENTION-DEFICIT HYPERACTIVITY DISORDER

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OBJECTIVES:Attention-deficit hyperactivity disorder (ADHD) is a common childhood neur obehavioural disorder. No specific etiology has been identified for ADHD. Tau protein contributes to the proper function of neuron. 8-iso-prostaglandin F2α (8-iso-PGF2α) is an indicator of oxidative stress biomarkers Up to now, no studies have been conducted on the concentrations of Tau protein and 8-iso-PGF2α in children with ADHD. The aim of this study is to evaluate the concentrations of Tau protein and 8-iso-PGF2α in children with ADHD.
MATERIALS and METHODS: The present study included 35 children with ADHD diagnosed by DSM-V criteria. Controls included 35 age, gender-matched healthy children. Children and adolescents were evaluated using the Schedule for Affective Disorders and Schizophrenia for school-age children, lifetime version (KSAD-L). The IQ was assessed by using the manual for the Weschler Intelligence Scale for Children-Revised. The concentrations of Tau protein, 8-iso-PGF2α in serum samples were measured with enzyme-linked immunosorbent assay.
RESULTS: There was no significant difference between the groups in terms of age, sex ($p>0.05$). The results indicated that the concentrations of 8-iso-PGF2α increased in patients with ADHD compared to control ($p<0.05$). However, there were no change in tau protein concentrations as statistically between groups. In the ROC analysis, there was good diagnostic value for 8-iso-PGF2α.
CONCLUSIONS: This is the first report to investigate the association between serum 8-iso-PGF2α, tau protein concentrations in ADHD patients. Our results indicated that 8-iso-PGF2α may play a role in the etiology of ADHD. Also, with 99% sensitivity and specificity, it is thought that 8-iso-PGF2α could be important for the diagnosis and treatment.
Keywords: ADHD, 8-iso-PGF2α, Tau protein

OP-045
EVALUATION OF THE POST-ANALYTICAL PHASE IN MEDICAL LABORATORIES

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OBJECTIVES: Post-analytical phase is very important in medical laboratory management and standardization of the post-analytical phase is required for accreditation of the laboratories. In this study, we aimed to evaluate the post-analytical phase in laboratories in Turkey. MATERIALS and METHODS: Post-analytical phase working group has prepared a questionnaire including 24 questions on post-analytical practices. Then the responses from 104 medical laboratories were examined to identify current post-analytical phase practices. RESULTS: 60% of the test results were approved both by laboratory technician and specialist, 40% by only laboratory technician, autoverification is used only in 7.4% of the laboratories. 54% of the patients receive their reports from the clinician and 31% from the laboratory secretary. Reference intervals suggested by the companies are used in 78% of the laboratories, 15% use literature based ranges, 6% use their own ranges. The comment of the laboratory specialist is added to %16.5 of the reports, 8.7% of the patients ask questions to the laboratory specialist about their results. When necessary, 56.4% of the clinical chemists give consultation to the clinician. Critical values are reported in %96 of the medical laboratories, %75 by phone call and 23% by text messages. Laboratory tecnician is responsible of critical value notification in 46% of the laboratories and 73% of the clinical services are informed about the results in 30 minutes. The most common reported critical values are electrolytes (%91.8), creatinine (%77.5) glucose (%96.9) and troponin (%75.5) levels. The analysis of critical value notification statistics are performed by 87% of the laboratories, monthly. CONCLUSIONS: Laboratory professionals should focus on standardization of the post-analytical phase; dealing with abnormal test results, informing the clinicians about critical values, adding interpretative comments to laboratory test results. Keywords: postanalytical phase, critical value notification

OP-046
CRITICAL VALUE EVALUATION IN HACETTEPE UNIVERSITY HOSPITALS

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OBJECTIVES: A critical value (CV) is defined as 'a test result that is significantly outside the normal range and may represent life-threatening values'. CV notification is one of the main quality indicators of the post-analytical phase to improve patient safety. MATERIALS and METHODS: In our study, test results reported from Hacettepe University Hospitals (Pediatric, Adult and Oncology) in 2018 between January and June have been evaluated in terms of CVs. 11 tests including glucose, sodium, potassium, magnesium, phosphorus, total calcium, total bilirubin, ammonia, hemoglobin, thrombocyte count and hematocrit were selected from our CV list. CV ratios for the selected tests were calculated according to the hospitals. CVs below the lower limits and above the upper limits were also analyzed. RESULTS: Our laboratory has obtained 10,614 CVs in total 1,655,713 selected test results (0.64%). Pediatric, Adult and Oncology hospitals contributed to the total CVs with a 18%, 71% and 11%, respectively. The most common CVs were thrombocyte (25%), hemoglobin (22%) and total calcium (15%) overall. The most common CVs in Pediatric Hospital were hemoglobin, thrombocyte and total bilirubin while thrombocyte, hemoglobin and total calcium were most common CVs in Adult and Oncology Hospitals. CVs for total calcium and magnesium were evidently below the lower limit in all hospitals. Hypoglycemia was significant in pediatric patients (79%) whereas hyperglycemia was remarkable (64%) in adult patients. CONCLUSIONS: Upper and lower limits of CVs should be determined for each hospital. Laboratory professionals should revise their CV list in communication with clinicians to provide a safer and higher quality patient care. Keywords: Critical value, post-analytic, lower limit, upper limit

OP-047
THE EFFECTS OF HIGH FRUCTOSE DIET ON ENDOPLASMIC RETICULUM STRESS, CELL DEATH AND OXIDATIVE DAMAGE

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OBJECTIVES: Total consumption of refined fructose has increased amazingly in the last 30 years. Many studies showed that high fructose intake induced diseases such as insulin resistance, metabolic syndrome. This study was designed to investigate the effects of high fructose diet on endoplasmic reticulum (ER) stress, cell death and, oxidative damage statutes in rat pancreas. MATERIALS and METHODS: Male Sprague Dawley rats (8-10 weeks-old) were divided into two groups. Control group (n=7) was fed standard pellet and tap water and Fructose group (n=7) was drank 20% fructose in drinking water for 12 weeks. The blood and pancreas tissues were collected from rats. Total antioxidant and oxidant statuses in plasma were measured, spectrophotometrically. Glucose regulated protein 78 (Grp78), Inositol Requiring Kinase 1 (IRE1), Protein Kinase-like ER Kinase (PERK), Activating Transcription Factor 4 and 6 (ATF4 and 6), C/EBP Homologous Protein (CHOP), Caspase -3, -8, -9 and -12 mRNA expression in pancreas tissue were determined by the qRT-PCR. RESULTS: It was observed that high fructose diet increased the mRNA expression levels of Grp78, IRE1, PERK, ATF 4, ATF 6 and Caspase -3, -8, -9 and -12 in rat pancreas of the Fructose group as compared to control group. The high fructose diet significantly reduced plasma antioxidant levels in the Fructose group when compared to Control group. However, the levels of total oxidant in plasma showed an increase with fructose diet, non-significantly. CONCLUSIONS: Our findings were shown that high fructose diet may cause ER stress and cell death in pancreas tissue, and disruptions of the oxidant/antioxidant balance in plasma. Keywords: Cell death, ER stress, Fructose, Oxidative stress

OP-048
A NOVEL IRON CHELATING LIGAND FOR IRON OVERLOAD DISEASES

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OBJECTIVES: Iron overload is a serious clinical condition for humans and is a key target in drug development. The aim of this study was to investigate the cytotoxic and antioxidant activities of Fe (III) ions with curcumin ligand that may be used in the treatment of iron overload.
MATERIALS and METHODS: In this study, Fe(III) complex of curcumin was synthesized and structurally characterized in its solid and solution state by FT-IR, UV-Vis, elemental analysis, and magnetic susceptibility. The cytotoxic activities of the ligand and the Fe (III) complex were evaluated by the MTT assay. Superoxide dismutase activity of the complex was tested using an indirect method. The catalytic activity of Fe(III) complex in DMSO against the disproportionation of hydrogen peroxide was also each tested.
RESULTS: Curcumin formed a brown-red complex with Fe(III). Data regarding magnetic susceptibility showed that the complexes with a 1:2 (metal/ligand) mole ratio had octahedral geometry.The complex showed higher antioxidant activity against HUVEC cell lines at an IC50 value of 5.3. Superoxide dismutase activity of the complex was tested. The results indicated that the complexes show increased SOD activity, suggesting that the iron complex is capable of removing free radicals. The catalytic activity of Fe (III) complex also showed catalytic activity.
CONCLUSIONS: Our study results revealed that the Fe(III) complex of curcumin with an appropriate potential drug may act as a protector against oxidative stress and the observed cytotoxicity could be pursued to obtain a potential drug. Further studies investigating the use of curcumin for this purpose are needed. Keywords: Curcumin, iron overload, catalase, Fe(III), Superoxide dismutase, cytotoxic activities

OP-049
PLATELET LEVELS AND NEUTROPHIL/LYMPHOCYTE RATIO IN THYROID NODULES WITH AND WITHOUT CANCER DIAGNOSIS

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OBJECTIVES: Nodular formation of thyroid tissue is a very common endocrinologic pathology. Approximately 5% of thyroid nodules can prove to be cancerous. The usefulness of mean platelet volume(MPV) and neutrophil to lymphocyte count(NLO) is determined as an indicator of immunological response and subclinical inflammation in recent years. In this study we evaluate

the association of thyroid stimulating hormone(TSH), platelet, MPV and NLO levels between the thyroid nodules that turn into cancer and do not convert. MATERIALS and METHODS: Our study consisted of patients with thyroid nodules that converted to thyroid cancer (n = 100) and didn't convert to thyroid cancer (n = 100).These patients were selected retrospectively using Hospital Information System. The TSH, NLO, platelet and MPV levels were recorded preoperatively and the difference between them was evaluated statistically with SPSS 21. Differences between groups were examined with using Mann Whitney U Test. P <0.05 were considered significant. RESULTS: Platelet, TSH and neutrophil values were significantly higher in the nodular group which convert to thyroid cancer (p <0,05). In addition, the likelihood of being thyroid cancer increased 1.47 times with a unit increase in the NLO variable, and 1.008 times with a unit increase in the Platelet variable. CONCLUSIONS: High levels of platelet and neutrophil in thyroid cancer may be due to increased cytokine level changes. It can be shown that data obtained from total blood count, which is an easy, inexpensive and reproducible assay, can be used as a marker in predicting prognosis with further studies. Keywords: neutrophil, platelet, thyroid nodule

OP-050
LOCALIZATION OF TISSUE REQUIRING SURGERY IN HYPERPARATHYROIDISM: CASE REPORT

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OBJECTIVES: Parathyroid adenomas is the most common cause of Primer hyperparathyroidism (PHP). Adenomas usually have elevated levels of serum parathyroid hormone (PTH) and calcium. The only alternative in the treatment of parathyroid adenomas is the surgeon. Determination of adenomal localization provides great convenience for minimally invasive parathyroidectomy. Laboratories help diagnose of many diseases. We want to share with you a case that we have seen this contribution clearly. MATERIALS and METHODS: Parathormone level was measured from the tissue that evaluated as parathyroid preoperative by ultrasound-guided fine needle aspiration biopsy (FNAB). RESULTS: Parathyroid Adenoma in the right lobe was detected with thyroid ultrasonography. Patient's blood PTH level was 138.7 pg/mL (18.5-88). Parathyroid adenoma suspicious lesion PTH level was measured as> 2000 pg/mL in FNAB aspirate. Patient was operated on these findings pathology report was reported as parathyroid adenomas. Postoperatively measured control blood calcium level was 9.6 mg/dL, PTH level was 25.9 pg/mL at normal levels. CONCLUSIONS: The success of minimally invasive parathyroidectomy is based on the localization of the abnormal gland preoperatively. The sensitivity of the ultrasonographic scan to detect the parathyroid adenoma is %70-80, sensitivity to localization of abnormal parathyroid gland by scintigraphic method is reported as %85-95. As current developments have increased interest in minimally invasive parathyroid surgery, more sensitive methods for localization are being investigated. When FNAB in the presence of preoperative ultrasonography is a highly sensitive method of localization of parathyroid tissue in addition the parathyroid level measurement in tissue aspiration confirms the diagnosis. Keywords: Parathormone, minimally invasive parathyroidectomy, aspirate,

OP-052
PROTECTIVE EFFECT OF NUTRACEUTICALS ON OXIDANT-ANTIOXIDANT LEVELS IN THE RAT BREAST CANCER

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OBJECTIVES: The aim of this study was to investegate the potential chemoprevention effects of Pomegranate (P) and Tangeretin (T), both alone and in combination, on the oxidant-antioxidant status in 7,12-dimethylbenz [a] anthracene (DMBA)-induced rat breast cancer model. MATERIALS and METHODS: A total of 56 Sprague Dawley female rats, 8-10 weeks old, were randomly divided into 8 groups. The first 4 groups were designed as controls of cancer and treatment groups and were composed of Control, P (5g/kg every day for the first 30 days), T (50mg/kg every day for the first 30 days) and P+T groups. The other 4 groups were designed as cancer and treatment groups and were composed of DMBA (D; 60 mg/kg single dose on the 15th day of the study) and D+P, D+T, D+P +T groups, respectively. At the end of 23 weeks, MDA levels were measured ın order to evaluate oxidative stress and lipid peroxidation from breast tissue samples, and for antioxidant status SOD, CAT, GSH-Px enzyme activities and GSH levels were measured spectrophotometrically by appropriate methods. RESULTS: While tissue MDA levels significantly increased in the DMBA group compared to the control group, SOD, CAT, GSH-Px activities and GSH levels significantly decreased. When the DMBA group and the treatment groups were compared, MDA levels significantly decreased only in the D+P+T while only the GSH levels of antioxidant parameters significantly increased in all treatment groups. CONCLUSIONS: It was observed that combined application of nutraceuticals affected oxidative stress and lipid peroxidation, moreover, it was found to act chemopreventively by activating the antioxidant defense system over non-enzymatic pathways in DMBA-induced breast cancer. Keywords: Breast Cancer, DMBA, Nutraceuticals, Oxidant-Antioxidant Levels

Introduction
Breast cancer, which is the most common type of cancer in women in Turkey as well as in the world, is still one of the most important health problems.
7,12-dimethylbenz [a] anthracene (DMBA), is considered as potential mutagenic and carcinogenic agents that play important roles in the development of oxidative stress-induced cancers, by leading to the production of free radicals in vivo. These radicals are highly toxic to cell membranes and cellular organelles and also interact with many macromolecules and lead to the deterioration of their structure and functions (1, 2).
The organism develops antioxidant defense systems against such damaging agents; they can be separated as enzymatic or non-enzymatic. In addition, it has recently been found that fruits and vegetables (nutraceuticals) containing various natural antioxidant phytochemical agents in the human diet have a significant positive contribution to this antioxidant system in our organism and thus benefit in the treatment of various diseases including as cancer (3, 4).
Pomegranate fruit (Punica granatum L), peel and extract contain many natural bioactive phytochemical agents. These include flavonoids such as Luteolin Kaempferol, Quercetin, hydrolyzable tannins such as punicalagin, ellagic acid, caffeic acid, gallic acid, and polyphenolic (acid) compounds, etc. (5, 6). It has been reported that pomegranate derivetes contains valuable phytochemicals which can be used therapeutically, has antiproliferative, antiangiogenic, anti-invasive and proapoptotic effects in some cancer cells in vitro and in vivo, and has strong antioxidant and anti-inflammatory properties (7).
Tangeretin is a polymethoxyflavone (PMF) compound with 5,6,7,8,4'-pentamethoxy flavone abundant in the peels of citrus fruit such as mandarin, lemon, orange, and grapefruit. In the literature, the bioactivity of citrus flavonoids has included the treatment of metabolic disorders, antiatherosclerotic, antidiabetic, anti-inflammatory, neuroprotective, antimicrobial and antioxidant regulation. PMFs' cancer preventive and / or anticancer activities contain various complex mechanisms. Furthermore, the use of these bioactive PMFs for chemopreventive and therapeutic purposes in the treatment of various diseases, especially cancer, has been the subject of many studies and attracts great attention nowadays (8).
Based on these considerations, it was aimed to investigate the chemopreventive effects of the administration of nutraceutical agents, alone or in combination, such as Pomegranate extract and Tangeretin on the oxidant-antioxidant condition in DMBA-induced rat breast cancer.
Materials and methods
This study was carried out in Fırat University Experimental Research Center (FÜDAM) in accordance with the ethical principles of standard experimental applications and by obtaining Fırat University Animal Experiments Local Ethics Committee (Approval Meeting Date: 06.0.4.2016, Number of Meeting: 2016/07, Decision No: 73, Protocol No: 2016/48).
Sprague Dawley female rats aged 8-10 weeks and weighing 205-220 g were used in the study. The rats were homogeneously, randomly divided into 8 groups. The first 4 groups were designed as the controls of cancer and treatment groups, and they were called as the Control group (K: n=7: fed with standard pellet feed and water ad libitum), Pomegranate group (P: n=7: from the beginning of the study until the 30th day, pomegranate extract [Pomella®] was administered once a day by gavage in 1 mL of dimethyl sulfoxide [DMSO] at a dose of 5 g/kg), Tangeretin group (T: n= 7: from the beginning of the study until the 30th day, Tangeretin was administered once a day by gavage in 1 mL of DMSO at a dose of 50 mg/kg) and the Pomegranate+Tangeretin group (P+T: n=6: Pomella®+Tangeretin was administered in combination in the same way as mentioned above), respectively. Furthermore, on the 15th day of the study, the animals in the first 4 groups were administered with 1 mL of olive oil only once by gavage. The other 4 groups were designed as the cancer and chemopreventive groups, and they were called as the DMBA/Cancer group (D: n=7: on the 15th day of the study, DMBA was administered in 1 mL olive oil once by gavage at a dose of 60 mg/kg) and D+P group (n=8), D+T (n=7), D+P+T (n=7), respectively. DMBA administrations in the last 3 chemopreventive groups were performed in the same dose and in the same way as DMBA administered in the previous group (Group 5), and phytotherapy agents were administered in the same dose and in the same way as the above-mentioned 2nd, 3rd, and 4th sham groups.
In the study, the in-vivo breast cancer generation protocol with DMBA was determined as follows; the rats were administered with DMBA with a sterile oral-gastric catheter at a dose of 60 mg/kg live weight by a single dose oral gavage under mild ether sedation. Approximately 100 days (16 weeks) after DMBA was administered on the 15th day of the study, the first mass formation was observed in the breast tissue. At the end of the 23rd week of the experiment, the rats were sacrificed by using sterile instruments under appropriate anesthetic conditions, and the experimental part was terminated.
A part of the breast tissue excised to cover the tumorous tissue was homogenized for 3 minutes at 16000 rpm with the help of a homogenizer (Ultra TurraxType T25-B, IKA Labortechnic, Germany) in 0.15M KCI (1;9,w;v) solution (+ 40C) to be used in biochemical analyses. The total protein levels were determined according to the Lowry method (9) in clear supernatants obtained after the centrifugation of homogenates at 5000xg for 1 hour (+ 4ºC). MDA levels for the evaluation of oxidative stress and lipid peroxidation, and SOD, CAT, GSH-Px enzyme activities and GSH levels for the evaluation of the antioxidant status were measured using appropriate spectrophotometric methods (10-14).
The Mann-Withney U test was used for the statistical difference between the

control and DMBA groups to reveal the formation of cancer in the data obtained as a result of biochemical analyses. In order to reveal the chemopreventive activity of drugs, the Kruskal-Wallis test was first used to show the statistical difference between the D, D+P, D+T, D+P+T groups, and then Dunn's test was used to show from which group this difference originated. $p<0.05$ was accepted for the lowest statistical significance, and the results were presented in Median (Min-Max). Furthermore, the statistical evaluation of all data obtained from this study was performed using IBM SPSS Statistics 22 which is licensed to Fırat University.

The analytical purity of DMBA (Tokyo Chemical Industry Co., Ltd. (TCI), Portland, USA) used in the study to generate the cancer model was > 98% (by GS). The pomegranate extract used as a chemopreventive agent in the study was the commercial whole pomegranate extract in powder with a natural polyphenolic ratio of standardized at least 95% purity (by HPLC) 'Pomella®' (Verdure Sciences®, Noblesville, USA). Tangeretin (AvaChem Scientific, San Antonio, U.S.A.) used as a chemopreventive agent in the study was in powder form and with 98% analytical purity (by HPLC). In the study, 0.1% DMSO (Fisher scientific, Leicestershire, UK) was used to dissolve therapeutic agents.

Results

The tissue oxidant and antioxidant levels of animals in all groups are summarized in the table.

Table 1. Comparison of Oxidant and Antioxidant levels for all groups

	MDA (nmol/g protein)		SOD (U/g protein)		CAT (k/g protein)		GSH-Px (U/g protein)		GSH (µmol/g protein)	
Groups	Median	(min-max)	Median	(min-max)	Median	(min-max)	Median	(min-max)	Median	(min-max)
K	24,4	(20,6-38,2)	987,7	(700,5-1123,9)	0,21	(0,10-0,49)	2359,7	(886,3-3803,7)	12,11	(5,57-12,66)
P	35,9	(19,7-60,0)	986,4	(626,2-1246,4)	0,22	(0,13-0,34)	2503,1	(1941,8-4285,8)	11,08	(3,73-17,77)
T	40,2	(26,9-43,9)	688,2	(254,5-783,6)	0,22	(0,14-0,26)	2878,2	(1517,8-3632,5)	8,92	(3,85-15,63)
P+T	31,1	(28,8-40,6)	851,2	(649,8-1024,5)	0,20	(0,15-0,50)	2960,4	(1463,4-4032,7)	11,25	(7,55-15,90)
D	63,4[aaa]	(51,1-136,9)	610,7[aa]	(403-961,9)	0,08[a]	(0,04-0,21)	923,4[aa]	(496,8-1887,8)	0,67[aaa]	(0,55-1,52)
D+P	51,1	(29,8-91,5)	754,2	(700,4-948,2)	0,23	(0,10-0,29)	1395,6	(983,5-2399)	3,88[bb]	(1,46-6,41)
D+T	57,9	(37,6-111,9)	686	(412,7-939,6)	0,17	(0,13-0,24)	1519,2	(779-2042,3)	2,17[b]	(1,02-5,51)
D+P+T	33,5[bbb]	(20,7-43,9)	759,7	(529,2-927,2)	0,19	(0,09-0,35)	1477,4	(1009,3-5919,3)	3,74[bb]	(1,46-8,57)

[a] $p<0,05$; [aa] $p\leq0,005$; [aaa] $p=0,001$: Compared to the Control (K) group, (Mann-Withney U test)
[b] $p<0,05$; [bb] $p<0,01$; [bbb] $p\leq0,005$: Compared to the DMBA (D) group (Kruskal-Wallis, Dunn test)

Discussion

In the study, the fact that breast tissue MDA levels of the rats in the cancer group showed a statistically significant increase ($p=0.001$) compared to the control group. This condition, ın cancer cells that proliferated with DMBA; It was interpreted as lipid peroxidation is induced and ultimately contributes to the progression of cancer. The fact that MDA levels were lower in all treatment groups compared to those in the cancerous group in our study is compatible with the literature (8, 15-17). However, the statistically significant decrease close to the control ($p\leq0.005$) was observed in the group in which only two therapeutic agents were administered (D+P+T) combinally. This can be interpreted that bioactive polyphenol compounds in pomegranate extract administered as a nutraceutical agent (punicalagin, gallic acid, and ellagic acid polyphenols) and Tangeretin with a flavonoid structure showed a synergistic effect to prevent DMBA-induced lipid peroxidation.

In our study, in accordance with some literature (15-18), it was determined that tissue SOD, CAT, GSH-Px activities and GSH levels of the rats with DMBA induced breast cancer significantly decreased ($p\leq0.005$; $p\leq0.05$; $p\leq0.005$ and $p=0.001$) compared to the control group. Increases were determined in tissue SOD, CAT and GSH-Px activities in all phytotherapy groups compared to the DMBA group. However, only significant effective increases were found in GSH levels. Although some of the results of our study seem to support the aforementioned studies, it can be interpreted that the oral treatments of pomegranate and tangeretin alone or in combination showed an anticarcinogenic effect through non-enzymatic antioxidant pathways rather than enzymatic pathways in activating the antioxidant defense system to deal with lipid peroxidation and oxidative stress resulting from DMBA.

In conclusion, especially the combined administration of Pomegranate extract and Tangeretin appears to be more useful in preventing the development of DMBA-induced breast cancer. However, we believe that further molecular studies are needed.

Acknowledgements

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OP-053
INVESTIGATION OF PHOSPHOLIPASE A2 AND MATRIX METALLOPROTEINASE-9 WITH CORONAR PLAQUE STRUCTURE

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OBJECTIVES: Coronary computed tomography angiography (CCTA) evaluate the presence of coronary plaques and stenosis, coronary bypass graft patency, and the origin and course of congenital coronary anomalies. Lipoprotein-associated phospholipase A2 (Lp-PLA2) is a promising new marker of atherosclerotic plaque destabilization, which plays a key role in the metabolism of pro-inflammatory phospholipids and in the generation of pro-atherogenic metabolites. Matrix metalloproteinase (MMP)-9 degrades extracellular matrix (ECM)proteinsandactivatescytokinesandchemokinestoregulatetissueremodeling. This study was performed to investigate whether combined use of LpPLA2 and MMP-9 levels and coronary computed tomography angiography (CCTA) results have additional prognostic value for predicting cardiovascular events in patients with suspected coronary artery disease (CAD).
MATERIALS and METHODS: Serum Lp-PLA2 and MMP-9 levels were studied by ELISA method. In the study groups, serum routine biochemical parameters were analyzed.
RESULTS: A total of 54 patients with suspected CAD who were underwent both CCTA and serum Lp-PLA2 and MMP9 measurements were evaluated. Stenosis and plaque percentile were 20.4% and 24.1 respectively. Patient with steonsis/ plaque group had significantly higher level of LpPLA2 and MMP-9 than control. Both Lp-PLA2 positively associated with MMP-9 and also MMP-9 with non-HDL. SdLDL associated not only with CRP and Lp-PLA2 but also with all assayed parameters.
CONCLUSIONS: Measurement of Lp-PLA2, MMP-9, and sdLDL-C levels in atherosclerosis may be correlated with the presence of atherosclerotic plaque and / or stenosis.
Keywords: Coronary CT angiography, Lp-PLA2, MMP-9, sdLDL, Coronary Plaque

OP-055
COMPARISON OF APOPTOTIC RESPONSE IN PARKINSON'S DISEASE IN VITRO MODELS

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OBJECTIVES: Apoptosis is a programmed cell death that plays a major role in the regulation of intercellular and intracellular homeostasis under physiological conditions. In this study, it is aimed to compare the apoptotic responses of four neurotoxins that are widely used to induce Parkinson's Disease model. MATERIALS and METHODS: Human neuroblastoma cell line (SH-SY5Y) was used in this study. Cell viability analysis were performed following MPP+, 6-OHDA, rotenone and paraquat treatments at three different time points (12, 24, 48 hours) and IC50 values for each neurotoxin were calculated. Pro- and anti-apoptotic (bax, bad, bak, bcl-2, bcl-x1) and total caspase-3 protein levels were measured by western blot following treatments. Comparisons of means between groups were performed by ANOVA followed by Tukey's post hoc test. RESULTS: All neurotoxins triggered apoptosis in cells. Rotenone and paraquat significantly altered the expression of bax, bcl-2, bcl-xl; MPP+ significantly altered the expression of bcl-2, bcl-xl and 6-OHDA significantly altered the expression of bad and bcl-xl proteins ($p < 0.05$). Each neurotoxin was found to enhance and/or reduce different proteins associated with apoptosis. CONCLUSIONS: It can be concluded that before the decision of a neurotoxin inducing Parkinson's disease model, it is necessary to determine the target proteins for screening newly synthesized drugs. It is considered useful to demonstrate the efficacy of the drug with a number of protein-binding assays prior to cell culture studies and to select the most effective neurotoxin accordingly. This study was supported by TÜBİTAK 2209-A Supporting Program for Domestic Research Projects of University Students.
Keywords: Parkinson's disease, apoptosis, MPP+, Rotenone, Paraquat, 6-OHDA

OP-056
AN UNCOMMON HEMOGLOBIN VARIANT: HEMOGLOBIN MOABIT

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OBJECTIVES: Hb variants can be faced to various clinical and laboratory findings. Hb Moabit is an unstable Hb variant with slightly reduced oxygen affinity. Arginine exchange (Leu → Arg) was detected at 86th position in the alpha chain instead of leucine. In this study we presented a case with Hb Moabit or -like variant, which was firstly detected in our country. MATERIALS and METHODS: Blood sample of a 14-year-old male patient with the preliminary diagnosis of abnormal hemoglobin was studied by HPLC method (Variant II, Bio RAD). Beta gene and alpha gene analyzes were also performed for definitive diagnosis. RESULTS: HbA0: 71.9%, HbA2: 1.3%, HbF: 0.2% and an unidentified peak: 18.1% (retention time: 3.93). Hb:14.6 g/dL, Hct: 43.4%, RBC: 5.5 M/mm3, MCV:78.9 fL, and MCH:26.6 pg. When the data library was examined, this peak could not be identified. Blood sample was analysed on the other HPLC system (Trinity, Biotech). The patient was thought to have the Hb Moabit variant. No mutation was detected in beta gene sequence analysis. Upon the absence of any deletions or mutations identified in the alpha strip analysis, the MLPA test and Alpha1-Alpha2 sequence analysis were progressed to detect other deletions and mutations. MLPA analysis was normal. In the analysis of the sequence, a signal like Hb Moabit was obtained. Sequence analysis is being continued. CONCLUSIONS: Abnormal hemoglobins are common seen in our country, located in the Mediterranean zone. It is very important to carry out molecular genetic analysis studies of unidentified peaks in HPLC.
Keywords: Abnormal hemoglobin variant, Hb Moabit, alpha chain mutation

OP-057
THE CHANGES IN CELLULAR RESPONSES AFTER NRF2 GENE SILENCING IN PARKINSON'S DISEASE

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OBJECTIVES: Recently, in addition to nuclear translocation and stability of Nrf2, GSK-3β inhibition has gained increasing attention in the prevention of oxidative stress and oxidative-stress related disorders. The present study was aimed to evaluate the regulatory role of glycogen synthase kinase-3β (GSK-3β) inhibition on oxidative stress through Nrf2 pathway in in vitro model of Parkinson's disease. MATERIALS and METHODS: siRNA-mediated gene silencing technique was used to examine the responses of Nrf2-target genes including HO-1, NQO1 to siRNA depletion of Nrf2 in MPP+-induced dopaminergic neuronal loss in SH-SY5Y cells. Nrf2 and its downstream regulated genes and proteins were analyzed using Real-time PCR and Western Blotting techniques, respectively, following GSK-3β inhibition by tideglusib. RESULTS: The cell viability was increased following GSK-3β enzyme inhibition against MPP+. Moreover, tideglusib significantly induced HO-1, NQO1 mRNA/protein expressions and nuclear translocation of Nrf2 ($p<0.05$). Nrf2 knockdown by siRNA abolished the protection exerted by tideglusib pre-treatment. CONCLUSIONS: GSK-3β enzyme inhibition may modulate endogenous cellular antioxidant defense systems including Nrf2/ARE pathway in Parkinson's disease. This study was supported by TÜBİTAK (The Scientific and Technical Research Council of Turkey) (Project Number: 215S528) and the Ege University Scientific Research Foundation (Project Numbers: 15/ECZ/012 and 16/BIL/004).
Keywords: Parkinson's disease, glycogen synthase kinase-3β, Nrf2 pathway

OP-058
A CASE OF FLOATING-HARBOR SYNDROME WITH A NOVEL MUTATION

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OBJECTIVES: Floating-Harbor Syndrome (FHS) is a rare autosomal dominant genetic condition characterized by speech defect, short stature with delayed bone mineralization, skeletal malformations and dysmorphic facial appearance such as triangular face, prominent nose, long eyelashes, short philtrum and deep-set eyes. SRCAP gene mutations cause this syndrome.. We aimed to report a male patient with Floating-Harbor syndrome who had novel mutation from Sivas in this study. MATERIALS and METHODS: After the physical examination, x-ray imaging was performed on the patient's bone structure (head, vertebral column, upper and lower extremities). Chromosome analysis and array comparative genomic hybridization (aCGH, Affymetrix / Thermo Fisher Scientific, US) were applied. Next- Generation Sequencing (NGS, Illumina, US) was done for mutation analysis. RESULTS: Physical examination of the patient revealed mental retardation, short stature, triangular face, mandibular prognathism, large nose, speech impairment, hearing loss and esotropia. The patient had been operated due to cleft palate and lip. A mild scoliosis and dental disorder was detected in x-ray. Chromosome analysis (46XY) and aCGH were normal. As a new mutation, c.7300G> T (Exon 34) was detected in SRCAP gene by NGS. CONCLUSIONS: We diagnosed a 16 year old boy as Floating-Harbor Syndrome with classical features of the disease such as short stature, triangular face, large nose, speech defect, mental retardation. He had disease-specific, heterozygous SRCAP gene mutation. There was no family history of the patient. It was a novel mutation.
Keywords: Floating-Harbor Syndrome, short stature, novel mutation, NGS.

OP-059
A PRACTICAL APPROACH FOR IDENTIFYING HBS OR HBD VARIANTS IN ELECTROPHORESIS: THE SOLUBILITY TEST

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OBJECTIVES: The most common hemoglobin variant in our country after hemoglobin S (HbS) is HbD-Punjab (Punjab). HbD disease usually does not give clinical symptoms unlike HbS disease having genetic origin which is often seen in the Mediterranean region of Turkey and characterized by severe hematological crisis. Therefore, similar electrophoretic behavior of the two variants may cause clinical anxiety until differential diagnoses are made. In our study, we aimed to discuss a practical method used to differentiate HbD and HbS variants known by clinical biochemistry laboratories.
MATERIALS and METHODS: Firstly, the records of 400 patients with Hb electrophoresis in the last 6 months were evaluated retrospectively. All patient results performed by "Sebia Hydrasys electrophoresis device with alkaline cellulose acetate method were again reviewed. Then, it was evaluated clinical diagnosis and evaluation of the patients who were thought to be HbS or HbD variants and their solubility test results using sodium dithionite and saponin solution were evaluated. In addition, these results were also confirmed by high performance liquid chromatography (HPLC).
RESULTS: As a result of our evaluation, it was found that there is a migration compatible with HbS or HbD variants in five patients. When the clinical diagnosis and anamnesis of these patients were examined, it was thought that only two patients might have Hbs variant.
When the resolution test results using sodium dithionite and saponin solution for differentiation of HbS and HbD variants were examined, it was determined that Hb variant of the 3 patients who were thought to be HbD was dissolved in solution and Hb variant of 2 patients who were thought to be HbS was insoluble. In addition, the results were also consistent with the HPLC method results. CONCLUSIONS: Differentiation of HbS and HbD variants showing the same electrophoretic migration in the alkaline electrophoresis can be made practically with the solubility test using sodium dithionite and saponin solution.
Keywords: HbS, HbD, The Solubility Test

OP-060
INHIBITION EFFECT OF ARYLIDENE INDANONES DERIVATIVES ON ACETYLCHOLINESTERASE ENZYME ACTIVITY

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OBJECTIVES: Alzheimer's disease (AD) is the leading cause of dementia in elderly people. The main physio pathologies are oxidative stress, inflammation and apoptosis that leads to neuronal loss and decrease at acetylcholine (ACh) levels. Nowadays, for symptomatic treatment of AD, acetylcholinesterase inhibitors are used for increment of decreased ACh levels. Acetylcholinesterase (AChE) is a highly viable target for the design and development of potent anti-AD agents. The aim of this study is to investigate the inhibitory activity of arylidene indanone derivate's on AChE. MATERIAL-METHODS: In the present study, 5-chloro-6-methoxy-2-[4-(substituted)benzylidene]-2,3-dihydro-1H-inden-1-one derivatives (1-10) were evaluated for their ability to inhibit AChE by a modified Ellman's method. Besides, molecular docking studies that were performed for compound 4 in the active site of human AChE (PDB code: 4EY7), some different pharmacokinetic parameters of all compounds were in silico predicted by Schrödinger's Maestro Molecular modelling package. RESULTS: The most potent AChE inhibitor was found as N-[4-[(5-chloro-6-methoxy-1-oxo-1,3-dihydro-2H-inden-2-ylidene)methyl]phenyl]-acetamide (4) (IC50= 5.93±0.29 µg/mL). Docking results indicated that compound 4 presented π-π stacking bonds with Trp286 and Tyr337 residues and formed H-bond with Phe295 residue in the active site of AChE. Besides, in silico pharmacokinetic results showed that all compounds were within the acceptable range intended for human use. CONCLUSIONS: According to both in vitro and in silico studies, compound 4 stands out as a promising orally bioavailable anticholinesterase agent for further studies.
Keywords: Acetylcholinesterase, Arylidene Indanones, Docking Studies

OP-062
THE EFFECT OF SUBEROYLANILIDE HYDROXAMIC ACID ON FIBROSIS MARKERS IN HUMAN HEPATIC STELLAT CELL LINE

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OBJECTIVES: Hepatic stellate cells (HSCs) are a major cell type responsible for liver fibrosis. Its functions are; the synthesis of extracellularmatrix (ECM) components, synthesis of matrix metalloproteinases (MMP) which play a role in the degradation of ESM, metallopeptidase inhibitors (TIMP) and liver regeneration. The activation of HSCs increases the release of certain chemicals and the accumulation of the proteins in the ECM damages the connective tissue so that the fibrosis process begins. Histone modifications allow control of gene expression at the transcriptional level. Histone deacetylase (HDAC) enzymes affect significant cellular processes, compounds that inhibit these enzymes have been defined. Suberoylanilide hydroxamic acid (SAHA) is a potent reversible HDAC inhibitor. It has been reported that SAHA inhibits the activation of hepatic stellate cells. In this study, it was aimed to investigate the effect of SAHA on MMP2, MMP9, TIMP (1-3) gene expression levels in human hepatic stellate cell line (LX-2). MATERIALS and METHODS: Gene expression was analyzed by Real Time PCR RESULTS: SAHA statistically reduced MMP2 and MMP9 gene expression levels in LX-2 cell line ($p<0.001$, $p<0.001$). There was no significant difference in TIMP (1-3) gene expression levels ($p<0.069$, $p<0.303$, $p<0.092$). CONCLUSIONS: Liver fibrosis is characterized by increased expression of MMPs and TIMPs. In our study, we think that SAHA inhibits the activation of hepatic stellate cells by reducing the level of MMP2 and MMP9 gene expression in LX-2 cells, therefore SAHA have a positive effect in inhibiting fibrosis, but further study of this issue is needed for better interpret
Keywords: İnsan hepatik stellat hücre hattı, Fibrozis, SAHA

OP-063
PHAGE DISPLAY DERIVED ANTIBODIES ENRICH ALIPHATIC RESIDUES IN ANTIGEN BINDING REGIONS

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OBJECTIVES: Therapeutic monoclonal antibodies are discovered/optimized with either in vivo or in vitro techniques. One of the most commonly used in vitro technology is phage display where antibody libraries are displayed on the surface of bacteriophages for screening of antigen binding. Although phage display has lots of advantages, antibodies might show polyreactivity and self-interaction which should be further improved. In this project, we aim to understand the difference between phage and non-phage derived antibodies. MATERIALS and METHODS: We use a database consisting of 137 antibodies which are either approved or on phase II/III clinical trials. Complementary determining regions (CDRs) of those antibodies are analysed based on physicochemical characteristics of residues. Statistical analysis based on sequence features are conducted and structural case studies based on two approved antibodies (adalimumab and infliximab) are presented. RESULTS: According to Pearson's and Spearman's correlation analysis of biophysical characterization results, phage-derived antibodies show more polyreactivity and self-interaction. We find that the reason behind these undesired attributes are aliphatic residues enriched in 2 particular CDR regions of antibodies. Also, we find some other significant factors related to the rest of CDR regions which probably contribute to self-interaction and polyreactivity of antibodies. CONCLUSIONS: We conclude that aliphatic residues enrich in the CDR regions of phage-derived antibodies. This might contribute to non-specificity and self-interaction of antibodies. Our results would help developing better library design approaches for further phage display studies.
Keywords: Antibody, Complementary Determining Regions, Phage Display, Polyreactivity, Self-Interaction

OP-064
AN EVALUATIN OF 8-ISOPROSTAGLANDIN CONCENTRATIONS IN CHILDREN-WHO-STUTTER

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OBJECTIVES: Stuttering is a speech disorder. There is known to be a close relationship between stress severity and stuttering. Up to now, no studies have been conducted on the concentrations of 8-iso-prostaglandin F2α (8-iso-PGF2α) as oxidative stress biomarkers in stuttering pediatric patients. In this study, it was aimed to compare the concentrations of 8-iso-PGF2α in stutterers and control groups and to evaluate the relationship between 8-iso-PGF2α concentrations and the severity of stuttering. MATERIALS and METHODS: The study included a total of 80 individuals, comprising a study group of 40 and a control group of 40. The severity of the stutter in the patient group was evaluated with the Stuttering Severity Instrument 3 (SSI). Blood samples were taken from both the patient and control groups and 8-iso-PGF2α concentrations were mesured by ELISA. RESULTS: In the stuttering patients, 8-iso-PGF2α concentrations were determined to be statistically significantly higher than those of the control group ($p<0.05$). In the ROC analysis, there was good diagnostic value for 8-iso-PGF2α, with the area under the curve as 1.0. A direct, positive, statistically significant correlation was determined between SSI points and 8-iso-PGF2α values ($r = 0.420$, $p = 0.037$). CONCLUSIONS: The results of the study showed that 8-iso-PGF2α concentrations of the stuttering patients were higher than those of the control group. With 99% sensitivity and specificity, it is thought that 8-iso-PGF2α in particular could be important for the diagnosis and treatment of these patients. As the severity of the stutter increased, so there was an increase in 8-iso-PGF2α, suggesting that 8-iso-PGF2α is importantin stuttering.
Keywords: 8-iso-PGF2α, oxidative stres, stuttering

OP-065
THE RELATIONSHIP BETWEEN VITAMIN D LEVELS AND RESPIRATORY AND FOOD ALLERGY

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OBJECTIVES: In recent years, the prevalence of allergic diseases has increased significantly. The association of allergic diseases with other diseases has been shown in many studies. Another parameter associated with allergic diseases is vitamin D. There are studies showing that allergic diseases increase in vitamin D deficiency. The purpose of our study is to investigate the relationship between allergy tests and vitamin D in patients who applied to Antalya Training and Research Hospital. MATERIALS and METHODS: Between January 2017 and August 2018, allergy tests and vitamin D results were assessed retrospectively in the Antalya Training and Research Hospital. RESULTS: Vitamin D levels were 27.1 ± 14.1 ng / ml in 788 patients with negative food allergy test in total 1176 patients, while vitamin D levels were 28,6 ± 12.9 ng / ml in 388 patients with food allergy test positive. Vitamin D levels were 23.8 ± 10.1 ng / ml in 243 patients with positive respiratory allergy test, while vitamin D levels were 29.6 ± 13.9 ng / ml in 933 patients with negative respiratory allergy test ($p <0.01$). CONCLUSIONS: There was a significant relationship between vitamin D levels and respiratory allergies. The relationship between the presence of vitamin D deficiency and allergic diseases is clinically important in Antalya province.
Keywords: Vitamin D, Food Allergy, Respiratory Allergy

OP-066
ANTI-CANCER ACTIVITY OF PACLITAXEL LOADED NGO NANOTHERAPY SYSTEMS ON MDA-MB-231 CELL LINES

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OBJECTIVES: The aim of this study is 1)to increase the biocompatibility of the Nano Grafen Oxide (NGO) nanoparticle by activating with PolyEthylene Glycol (PEG) to develop a new nanostructure system and 2)to determine the cytotoxic effect of Paclitaxel (PTX) loaded with this drug on MDA-MB-231 cell lines. MATERIALS and METHODS: NGO nanoparticles used in this study were synthesized by Hummers method, coated with PEG, and NGO-PEG nanostructure system was loaded with PTX. SEM, EDX, XRD, UV, Zeta Potential analyses of suspensions prepared at different concentrations of NGO, NGO-PEG, PTX, and NGO-PEG-PTX nanostructured system were performed. The synthesized NGO, NGO-PEG, PTX, and NGO-PEG-PTX were applied to the MDA-MB-231 breast cancer cell line and cytotoxic effect of these drugs were determined by using MTT method. The MDA-MB-231cells were treated with different concentrations of NGO, NGO-PEG, PTX, and NGO-PEG-PTX (5-100 µM) for 24, 48 and 72 hours. Apoptosis and necrosis were determined by fluorescence microscopy using the Hoechst 33258 (HO)/propidium iodide (PI) double staining. RESULTS: In this study, the characterization analyzes of NGO, NGO-PEG, PTX, and NGO-PEG-PTX nanostructured system are in accordance with the literature data. The effects of NGO, NGO-PEG, PTX, and NGO-PEG-PTX on the MDA-MB-231 cells were compared with the control group and IC50 values were determined for 24, 48 and 72 hours. CONCLUSIONS: In this study, it was shown that the effect of NGO-PEG-PTX nanostructured system on MDA-MB-231 cells was inhibitory to growth in cancer cells and induced apoptosis when compared with control group and PTX.
Keywords: Breast Cancer, MDA-MB-231, PEG-NGO, PTX

UV−vis spectra were employed to examine the drug loading behavior of NGO-PEG (Figure 2). The characteristic absorption peak of PTX (250 nm) appeared in the sample of NGO-PEG-PTX, indicating successful formation of NGO-PEG-PTX conjugates. This peak indicating efficient loading of PTX by NGO-PEG.
Keywords: Breast Cancer, MDA-MB-231, PEG-NGO, PTX

Introduction

Cancer is one of the principal causes of mortality worldwide and represents a serious health problem [1]. Breast cancer is the most common malignancy in women and is the second most common cause of cancer-related death in women worldwide [2]. Various therapeutic strategies including hormone inhibitors, chemotherapy and monoclonal antibodies are used in breast cancer treatment [3]. Chemotherapy has become more and more important in the treatment of breast cancer, and is considered to be a key part of the treatment needed to avoid the recurrence of cancer after surgery [4]. However, the biggest obstacle to chemotherapy is drug resistance [5]. Paclitaxel (PTX) is one of the chemotherapeutic agents with anti-tubulin activity used in the treatment of breast cancer patients [6]. However, the efficacy of paclitaxel treatment is limited to the development of drug resistance [7]. In recent years, scientists have focused on nanoparticles to develop more effective chemotherapy treatment methods. Nanostructing systems can show better synergistic effects and are widely used in targeted treatment of tumors in the clinic [8]. Nanopolymer material has become a novel type of carrier due to its unique hydrophilic carbon atom structure and satisfactory physical-chemical properties [9]. Graphene oxide (GO) is a new generation of polymers, such as polyethylene glycol (PEG) or hydroxyl graphene-PEG, can be used as the carrier for antitumor drugs to improve the treatment efficacy of loading drugs [10]. Therefore, it is necessary to reduce PTX adverse effects by binding with drug carrier, and enhance treatment efficiency. In this study, we generated NGO-PEG-PTX complex, whose cytotoxicity and antitumor efficiency were evaluated in human MDA-MB-231 breast cancer cells.

Materials and Methods

Synthesis of PEGylated Graphene Oxide: Graphene oxide (GO) was prepared from expandable graphite flake according to the modified Hummer's method [11-13]. To obtain NGO, GO was cracked by ultrasonic probe at 570 W for 2 h. For pegylation, NaOH (1.2 g) and ClCH2COOH (1.0 g) were added to NGO aqueous suspension (10 mL, 2 mg/mL) and sonicated at 500 W for 3 h to convert OH groups to COOH via conjugation of acetic acid moieties resulting in NGO-COOH. The NGO-COOH solution was neutralized, and purified by repeated rinsing and filtrations, producing well dispersed NGO-COOH aqueous solution. N-(3-dimethylaminopropyl-N'-ethylcarbodiimide) hydrochloride (EDC) was added to the NGO-COOH suspension (10 mL, 1 mg/mL) at pH 5.6 and the mixture was sonicated for 5 min PEG (2 mg/mL) was then added to the above suspension and stirred for 24 h at room temperature. The final product (NGO-PEG) was washed by repeated centrifugation and filtration, first with 5% HCl aqueous solution, and then distilled water for several times [14,15].

Characterization: The morphologies of NGO and NGO-PEG-PTX were characterized using XRD and ultraviolet-visible (UV-VIS) spectrometer. X-ray diffraction (XRD) data were obtained by a diffractometer (Rigaku DMAX IIIC). UV-Vis spectrophotometer (UV-1280, Shimadzu, Japan) was utilized to record the spectra of prepared samples range from 200 to 800 nm.

Drug loding on NGO-PEG: PTX loading onto NGO-PEG was done by simply mixing 0.4 mg/mL of PTX with NGO-PEG solution (0.2 mg/mL) at pH 8 overnight. Unbound PTX was removed by repeated washing and filtration through a 100 kDa filter (Millipore). The resulting NGO-PEG-PTX complexes were resuspended and stored at 4 ˚C.

Cell Culture: MDA-MB-231 cells were maintained in DMEM medium, containing 10% fetal bovine serum (FBS), penicillin (100 U/mL) and streptomycin (10 mg/L). Cells were grown in at 37 °C, 5% CO2 and 95 % air in a humidified incubator. For each cell line, 70-80% confluent cell culture flask was trypsinized and cells were seeded in 96 well plates.

Cytotoxic effect of NGO targeted drug in and MDA-MB-231 cells: Cytotoxicity of the NGO, NGO-PEG, NGO-PEG- PTX and PTX against MDA-MB-231 cell lines was performed with the MTT 3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide) assay according to the Skehan's method. Briefly, cells were trypsinized and plated into 96-well plates (Corning, USA) in 0.1 mL of complete culture medium at a density of 1 × 105 cells per well and allowed to attach for 24 h. 1 µL of test substance at concentrations ranging between 5-100 µg/ml were added into each well containing the cells. Test substance was diluted with sterilized water into the desired concentrations from the stock. The plates were incubated at 37°C with an internal atmosphere of 5% CO2. After 24, 48 and 72 h incubation, with different concentrations of compounds, MTT (5 mg/ml dissolved in PBS) 10 µl/well was added directly to all the wells and incubated for 2 hours at 37°C. The supernatant was carefully removed from each well and 100 mL of DMSO was added to each well to dissolve the formazan crystals. After mixing with a mechanical plate mixer for 15min, the absorbance of plates were recorded at 570 nm on a microplate reader (Bio-Tek, USA). All drug doses were parallel tested in triplicate and were performed at least 3 times; control samples were run with 1% sterilized water.

Results and DiscussionSynthesis and characterization of NGO-PEG and NGO-PEG-PTX

NGO was obtained by oxidation of graphite following the modified Hummers method and then modified with PEG to improve the biocompatibility and enhance blood circulation of graphene [16,17,18]. The distances between the sheets as well as their folding and structural disruptions in graphite and its functionalized derivatives are highly different. Therefore, the graphite, NGO and carboxylated functionalized samples were characterized by XRD for more structural analysis. The XRD patterns confirmed the chemical oxidation of the exfoliated graphite and formation of NGO (Fig. 1). Graphite demonstrate a very strong and sharp peak at 2θ = 26.40˚, which corresponds to the diffraction of the (002) plane. After graphite oxidation to NGO, the (002) reflection of graphite disappears and a diffraction peak at 2θ = 10.21° is present, which matchs to the diffraction of the (001) plane indicative of the successful oxidation of graphite [19,20]. Further carboxylation process under basic conditions resulted in a more dispersion and exfoliation of nano-sheets probably due to the addition of the chloroacetic acid residue (–O–CH2–COOH). As a result, the carboxylated sample showed a much weaker and broader diffraction peak at 2θ = 9.82° as compared to the NGO which indicates an increase in the interlayer spacing.

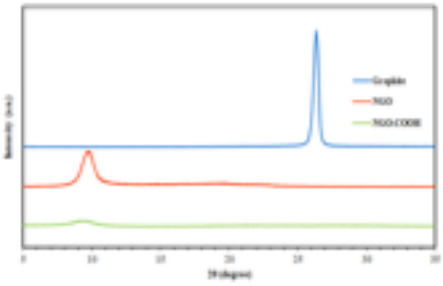

Figure 1. The XRD patterns of graphite, NGO and NGO-COOH.

UV−vis spectra were employed to examine the drug loading behavior of NGO-PEG (Figure 2). The characteristic absorption peak of PTX (250 nm) appeared in the sample of NGO-PEG-PTX, indicating successful formation of NGO-PEG-PTX conjugates. This peak indicating efficient loading of PTX by NGO-PEG.

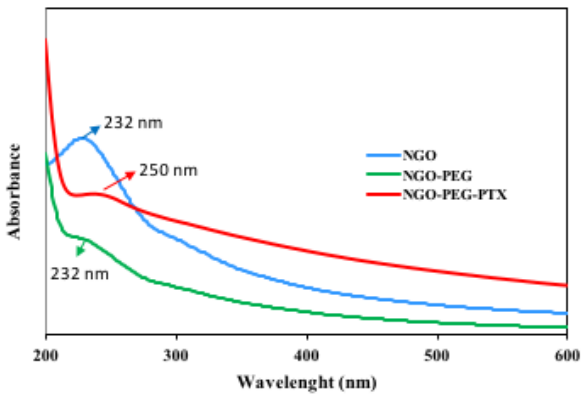

Figure 2. UV-vis absorbance spectra of NGO, NGO-PEG and NGO-PEG-PTX.

Cytotoxicity activities of NGO, NGO-PEG, NGO-PEG-PTX and PTX drugs on MDA-MB-231 cells: Figure 3 shows changes in cell inhibition for 24, 48 and 72 hours versus increasing concentrations of MDA-MB-231 cell lines. x-axis shows cell types and varying time points, while the y-axis shows the inhibition rates of cancer cells relative to the control. Compared to the control group, NGO-PEG-PTX treated MDA-MB-231 breast cancer cells showed significantly decreased tumor survival rate after 24h, 48h and 72h of incubation. Compared to the PTX group, the NGO-PEG-PTX group had significantly reduced survival rate after 24h, 48h and 72 h of incubation. Cell survival rates in all groups after 24h, 48h and 72 h of incubation were significantly decreased than those in the control group. With elongated treatment time, the survival rate of tumor cells was significantly reduced. NGO, NGO-PEG, NGO-PEG-PTX and PTX drugs on MDA-MB-231 cells was the most active for 72 h of incubation. In addition, the most active NGO-PEG-PTX and IC50 values for 24, 48 and 72 hours were 28,58 µg/ml, 39,16 µg/ml and 31,24 µg/ml respectively (Table 1).

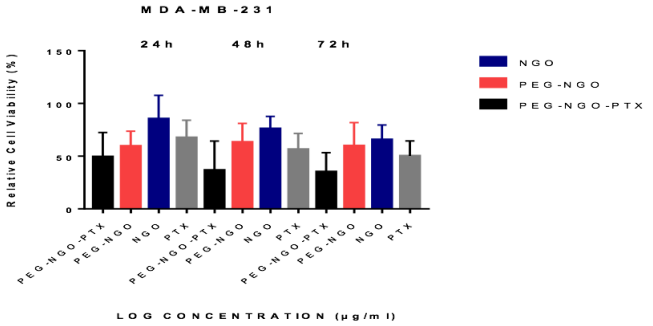

Figure 3. Cytotoxity effect of NGO, NGO-PEG, NGO-PEG- PTX and PTX drugs on MDA-MB-231 cell line.

Table 1: Comparison of IC50 values between NGO, NGO-PEG, NGO-PEG-PTX and PTX on MDA-MB-231 after 24 h, 48 h and 72 h of incubation.

Drugs	IC50 (µg/mL) MDA-MB-231		
	24h	48h	72h
NGO-PEG-PTX	28,58	39,16	31,24
NGO-PEG	66,72	51,39	50,52
NGO	59,38	44,78	43,95
PTX	55,52	41,73	30,74

1.1 Hoechst 33258 (HO; Sigma) /propidium iodide (PI; Sigma) stainig. In our study, morphological alterations of apoptotic cell death were detected by fluorescence microscope using HO and PI staining. The apoptosis rates of MDA-MB-231 cells treated with NGO-PEG-PTX and PTX were found to be 59.8% and 56.3%, respectively. Whereas the necrosis rates of MDA-MB-231 cells treated with TiO2-PEG-PTX and PTX were found to be 6.9% and 4.1%, respectively. In addition, NGO-PEG-PTX caused more apoptosis than PTX, although it was not statistically significant.

CONCLUSION

In summary, NGO, NGO-PEG and NGO-PEG-PTX were successfully synthesized and characterization analyzes were shown. The synthesized nanomaterials retained their stability over days or even months. This study demonstrates the possibility of using NGO-PEG-PTX to inhibit the growth of breast cancer (MDA-MB-231) cells with therapeutic treatments. Apoptosis rate of NGO-PEG-PTX was not found to be statistically significant, although an increased rate of apoptosis was detected after treatment with NGO-PEG-PTX. As a result, NGO-PEG-PTX had more apoptotic death than PTX in the MDA-MB-231 cells.

Acknowledgement: This study was carried out at Cumhuriyet University's Advanced Technology Application and Research Center (CUTAM).

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OP-067

RELATION BETWEEN RED BLOOD CELL DISTRIBUTION WIDTH (RDW) AND INFLAMMATORY BIOMARKERS

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OBJECTIVES: Recent studies have demonstrated that red cell distribution width (RDW) is associated with inflamatuar markers. MATERIALS and METHODS: We retrospectively analyzed results of RDW,hemoglobin, C-reactive protein (CRP), mean corpuscular volume (MCV), ferritin, erythrocyte sedimentation rate (ESR), mean platelet volum (MPV). RESULTS:A total of 591 randomly selected patients admitted to our hospital between 01.01.2018 and 31.06.2018 were retrospectively analyzed through the hospital information system. Patients were divided into two groups in terms of their RDW levels as follows: first group: <14.5%; second group: ≥14.5%. Second group were had higher ferritin and lower values of MCV, hemoglobin than first group values. CONCLUSIONS: RDW, may be a useful diagnostic and prognostic marker of inflamation, with treatment monitoring.
Keywords: Inflammation, red blood cell distribution width (RDW), MPV,Hemoglobin

OP-068
ANALYSIS OF PREANALYTIC ERRORS BY DIFFERENT AUTOANALYZER AND SAMPLE TYPES

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OBJECTIVES: It is aimed to determine the causes of preanalytical errors according to different autoanalyzer and sample types. MATERIALS and METHODS: In this retrospective study, rejected biological samples were analyzed in the laboratory information system of Mengucek Gazi Training and Research Hospital between 01.01.2017 - 31.12.2017. According to device types, reasons for rejection and rejection rates were identified. RESULTS: At the indicated dates, 748758 samples were reached in the laboratory, of which 4245 (0.56%) were rejected. The number of rejected samples and the percentage of the total number of samples in their group; biochemistry 597 (0.289%), hormone 743 (0.504%), hemogram 930 (0.460%), coagulation 456 (0.977%), blood gas 1137 (6.050%), nephelometer 227 (0.316%) and sedimentation 155 (% 0.277) were found. Most reasons for rejection; incorrect test request (% 53.6) and hemolysis (% 22.6) in the biochemistry samples, inadequate sample (61.5%) and incorrect test request (30.2%) in hormone samples, clotted samples (76.9%) and incorrect sample container (7.9) in hemogram samples, level error (38.5%) and clotted sample (31.3%) in coagulation samples, clotted sample (89.1%) and inadequate sample (5.7%) in the blood gas samples, incorrect sample container (% 53.7) and incorrect test request (% 21.1) in the nephelometer specimens, incorrect sample container (37.4%) and clotted samples (34.1%) in the sedimentation samples were identified. CONCLUSIONS: The preanalytical error sources vary according to the sample types and autoanalyzers. These results should be stated in personnel trainings and necessary precautions should be taken. Keywords: Preanalytical error, hemolysis, clotted samples, insufficient sample, incorrect test request, incorrect sample container

OP-069
EVALUATION OF IODINE LEVELS IN LAST THREE YEARS; RETROSPECTIVE STUDY

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OBJECTIVES: Iodine is a basic trace element, required for the production of thyroid hormone. Iodine deficiency impairs thyroid hormone production and has many adverse effects. Approximately 2.2 billion people live in regions with iodine deficiency and are at risk for the complications of iodine deficiency. In this study, iodine values measured in urine specimens from biochemistry laboratory between 2015-2017 were retrospectively screened; gender, age groups and seasonal distribution of low iodine levels were examined. MATERIALS and METHODS: In our laboratory, the iodine spot urine was assayed by Sandell-Klothoff method. From the iodine results between 2015-2017, the lower ones were identified and the variation between years was compared by creating different groups. RESULTS: When the years 2015-2017 were examined, it was observed that the iodine deficiency was increasing (43.5%, 47% and 64%, respectively). When the gender percentage of those with low iodine levels is examined, more women were seen (female and male, respectively, 56% and 45.5% respectively). Considering the age range from 0 to 18 years, it was found that iodine lowering was the most adolescent period and increased over the years (55% in 2015 and 75% in 2017). When seasonal variation was observed, it was found to be generally difference. CONCLUSIONS: Iodine deficiency remains an important public health problem. In this regard, community awareness and continuity of education are important. Keywords: Iodine deficiency, Retrospective,Trace element

OP-070
FASTING AND NON-FASTING LIPOPROTEINS ARE NOT THE SAME

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OBJECTIVES: Lipid panel tests are requested in 10-12 hour fasting however, recent studies have demonstrated that especially low-density lipoprotein (LDL) cholesterol do not significantly change with food intake and this difference is attributed to hemodilution effect caused from fluid intake. In addition, those studies claimed that non-fasting LDL cholesterol is better indicator to show cardiovascular disease (CVD). Aim of this study is to compare the fasting and non-fasting LDL values of the same individuals and discuss whether non-fasting and fasting LDL results can be used in place of each other, directly or after applying hemodilution correction models. MATERIALS and METHODS: A total of 248 apparently healthy participants were collected and fasting and non-fasting blood samples of the same individual were withdrawn in same day. All samples were analyzed for hemoglobin, albumin, triglyceride, total cholesterol, high-density lipoprotein (HDL), and LDL concentrations. Results are evaluated before and after adjusting the fasting and non-fasting samples with two different correction factors calculated by using fasting and non-fasting albumin and hemoglobin concentrations. Concordance of fasting and non-fasting risk group for developing CVD were calculated according to the National Cholesterol Education Program classification. RESULTS: Fasting and non-fasting LDL and non-high density lipoprotein cholesterol (non-HDL) concentrations were significantly different in every model ($p<0.001$). Concordance results of fasting and non-fasting LDL and non-HDL risk groups were 63.8% and 77.9% respectively. CONCLUSIONS: Our results demonstrated that fasting and non-fasting LDL and non-HDL concentrations could not be used in place of each other even when the results were adjusted for elimination of the hemodilution effect. Keywords: Low-density lipoprotein cholesterol (LDL), non-fasting, fasting, cardiovascular risk

OP-071
PERFORMANCE WITH DIFFERENT EQUATIONS FOR LDL-C ESTIMATION BETWEEN HEALTLY POPULATION IN TURKEY

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OBJECTIVES: In rutine, low-density lipoprotein cholesterol (LDL-C) is estimated using Friedewald equation. However, several new formulas have been proposed for estimation LDL-C for recently years but have not verified in different populations. The aim of this study compare LDL-C estimations using various formulas with directly measured LDL-C in among the Turkish population. MATERIALS and METHODS: A total of 1478 participants who were aged between 18 and 65 were classified into five groups according to serum triglycerides (TG) concentration as follows: <100 (n=292), 100-199(n=262), 200-299 (n=304), 300-399 (n=254), < 400-1000 (n=366) mg/dL. Serum lipid profile concentrations were measured with Cobas 6000 c501 (Roche Diagnostic). D- LDL-C concentrations were measured by a homogenous direct assay using reagents. We used results of the D- LDL-C measurement as the reference value. We investigated the accuracy ten equations (Friedewald, De Cordova, Ahmadi, Anandaraja, Teerakanchana, Chen, Hattori, Vujovic, Puavillai, Hatta) for estimating LDL-C in this study. RESULTS: In group 1, Anandaraja formula correlated best with D- LDL-C (r= 0.367), but this correlation is weakly. In group 2 and group 4, Teerakanchana formula correlated best with D- LDL-C (respectively; r= 0.931, r= 0.950). In group 3, Friedewald and Teerakanchana formulas correlated best with D- LDL-C (r= 0.935). In group 5, Anandaraja formula correlated best with D- LDL-C (r= 0.792). CONCLUSIONS: We observed suitable correlation of the Teerakanchana at TG range 100-400 mg/dL. Anadaraja formula showed the best correlation in high TG concentrations. Consequently, it is necessary to determine the formula selection for LDL-C according to the TG concentration. Keywords: Friedewald Formula, Low-Density Lipoprotein Cholesterol, Cholesterol, Triglyceride, Estimation Low-Density Lipoprotein Cholesterol

OP-072
COMPARISON OF EMERGENCY BIOCHEMISTRY TESTS WITH LI-HEPARIN (BARRICOR ™) AND GEL TUBES

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OBJECTIVES: Reliable and rapid test results requested by the ED are important for the patient to receive early treatment, as well as to shorten the LOS. Since use of plasma needs no clothing time and shortness the centrifugation, we compared BD Vacutainer® Barricor ™ lithum heparin tubes with mechanical separator for the chemistry parameters with our current tubes; Greiner bio-one VACUETTE® serum gel tubes. MATERIALS and METHODS: Blood samples taken from randomly selected 42 ED patients collected to lithium heparin (Barricor™) and serum gel tubes (VACUETTE®). Barricor ™ tubes were centrifuged for 3 minutes at 2360xg, and serum gel tubes were centrifuged for 10 minutes at 1500xg. Twelve chemistry parameters were analysed. Dependent t test was used for normal distirbution tests and Wilcoxon sign test was used for non-normal distribution. Total error, bias and % bias were applied for clinical significancy level. RESULTS: Considering for ALT, albumin, calcium, potassium, urea, total bilirubin and direct bilirubin results were statistically significant. No significant difference found for the other parameters. Statistically significant results, tested for clinically significancy and bias and total error checked. No clinically significant difference was detected for any parameters. CONCLUSIONS: As a result, there were statistically significant differences in several parameters between the BD Vacutainer® Barricor ™ plasma tube with mechanical seperator and the serum gel tubes. However, this difference was not clinically significant. The BD Vacutainer® Barricor ™ plasma tube can be an alternative to serum gel tubes to shorten the TAT and improve sample quality. Keywords: Barricor, Li-heparin, serum gel tube, mechanical separator, plasma tube.

OP-140
EVALUATION OF SUSPICIOUS POSITIVE HLA B27 RESULTS IN FLOW CYTOMETRY

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OBJECTIVES: We aimed to investigate how suspicious positive results obtained by flow cytometry turned out in the verification tests conducted in the genetic laboratory and to evaluate the reference range of the test.
MATERIALS and METHODS: In the Medical Biochemistry Laboratory of Istanbul Training and Research Hospital, between January 27 th 2017 and October 16 th 2018, 1949 HLA B27 flow cytometry (Beckman Coulter Navios 10 Color 3/L) screening results were analyzed retrospectively. Seven suspected positive samples were sent to the genetic laboratory for verification and the results were compared.
RESULTS: Of the 1949 patients, 1747 were reported as negative, 30 as positive, and 172 as suspicious positive. It was observed that the suspicious positive results were positive for all of the samples directed to the genetic laboratory for verification by the clinician.
CONCLUSIONS: Genetic validation of all suspicious positive results was positive and it is suggested that recommended reference range for flow cytometry should be reviewed.
Keywords: HLA B27, flow cytometry, reference range

OP-073
ANALYSIS OF OXIDATIVE STRESS DEPENDED PEROXIDE AND FREE FATTY ACIDS OF MICROALGAL LIPID

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OBJECTIVES: Schizochytrium sp. is widely studied microalgae to obtain high content of polyunsaturated fatty acids especially docosahexaenoic acid (DHA). They contain various bioactive compounds that can be used as pharmaceutical raw material, food additive, aquaculture and animal feed.Schizochytrium sp. which is grown rapidly and produced high amount of DHA can be used as an alternative to fish oils. The aim of this study is to analyze the lipid peroxide and free fatty acids due to the oxidative stress of microalgae oil with high DHA ratio.
MATERIALS and METHODS: : PUFAs are prone to autoxidation (oxidative rancidity) because of double bonds in their structure. Generally, autoxidation is determined by the peroxides which are intermediates in the autoxidation reaction. Free radical is formed in the autoxidation reaction that leads to form off-flavours. Acedic asid-chloroform method was used for peroxide value determination in this study. The free fatty acids (FFAs) and the non-polar components are separately recovered and measured with phenolphthalein assay.
RESULTS: Microalgal lipid free fatty acid 0.1 ppm, Anisidine value 20 mg KOH / gr, peroxide value 5 meg / kg were found. Free fatty acid, anisidin, peroxide and unsaponifiable matter values were determined below the limit when it is compared to fish oil.
CONCLUSIONS: Fish can accumulate toxins such as mercury, dioxins, and polychlorinated biphenyls (PCBs), and spoiled fish oil may produce peroxides. Because of LC-PUFAs are more prone to oxidation, it was suggested to add antioxidant solution to algal culture
Keywords: Lipid, oxidative stress, peroxide, free fatty acid

OP-074
THE EFFECT OF ACRYLAMIDE ADMINISTRATION ON LARGE INTESTINE AND BLADDER FUNCTIONS IN RATS

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OBJECTIVES: Acrylamide, a water-soluble vinyl monomer, is widely used in various industrial fields. The toxic effects of acrylamide on rats have been shown in many studies. However, the effect of acrylamide on organs such as the bladder and large intestine has not been investigated much. In this study, we examined how acrylamide influences the functions of the large intestine and bladder.
MATERİALS and METHODS: 13-week-old m ale Sprague-Dawley rats were used for this study. Rats were assigned into two groups as control and acrylamide groups. The control group was fed with standard rat diet and drinking water. The rats of acrylamide group were administered acrylamide at a daily dose of 40 mg/kg for 21 days, once a day and by gavage. At the end of 21 days, the rats were sacrificed by being fasted for 12 hours.
RESULTS: The rats were undergone to laparotomy and it was seen th at the rats of acrylamide group had distention in their large intestines and they had urinary retention (glob vesica) in their bladder. It was observed that their large intestine and bladder were tense and full despite they had fasting for 12 hours.
CONCLUSIONS: Acrylamide causes distension of large intestine and urinary retention in the bladder. This may result from neurotoxic effect of acrylamide on the spinal level and the intestinal and bladder smooth muscle dysfunction which occurs depending on this effect.
Keywords: Acrylamide, neurotoxicity, large intestine, bladder

OP-075
PROMINENT AUTOFLUORESCENCE WAS OBSERVED IN FORMALDEHYDE-FIXED, PARAFFIN.EMBEDDED LIVER TISSUE SAMPL

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OBJECTIVES: Histological techniques are indispensable scientific methods based on microscopic examination. In histology, specific stainings are as common as non-specific stainings. Specific stainings are called as immunohistochemistry staining, which is based on protein antibody interaction. Immunofluorescence is one of those techniques, in which fluorophores are bound to the end of a secondary antibody and emit fluorescent when exposed to respective wavelength of ultraviolet. In this study, our goal is to examine the specificity of immunofluorescence technique in, paraffin-embedded tissue sections.
MATERIALS and METHODS: In our study, formaldehyde-fixed and paraffin-embedded rat liver blocks were used. Routine immunohistochemical procedures were performed to the tissue sections. After removed the paraffins, the tissue sections were treated with both primer (Nrf2) and secondary antibodies (goat anti-rabbit), treated with only secondary antibody or treated with no antibodies and then examined under fluorescence microscopy. We employed FITC fluorophore, which emits green colored light.
RESULTS: According to the results, green autofluorescent was observed over whole liver tissue, especially in vascular parts of liver, in the tissue sections to which no primary and secondary antibodies were applied. The cytoplasmic part of cells considered to be immunopositive were also observed in tissue sections in which no primer antibody was used.
CONCLUSIONS: In conclusion, formaldehyde-fixed liver tissue sections emitted excessive autofluorescence. Under these conditions, it is very difficult to examine immunofluorescenctly-labelled tissue. It is therefore necessary to examine the tissue sections under fluorescent microscope with different filters before starting the experiment.
Keywords: Liver, formaldehyde, autofluorescent, immunofluorescent

OP-076
GLUT 2 PROTEIN CHANGE IN HEPATOCYTES AFTER ACRYLAMIDE EXPOSURE: AN IMMUNOCYTOCHEMICAL EXAMINATION

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OBJECTIVES: Acrylamide is a chemical, the neurotoxic, genotoxic, mutagenic effects of which is well-known on living organisms. Glucose transporter 2 (GLUT 2) is an important transmembrane carrier protein which assists the glucose intake into cell. In literature, to our best knowledge, there is a gap about the impact of acrylamide on GLUT 2 proteins. Thus, in the present study, our purpose was to examine the effct of acrylamide on GLUT 2 proteins of clone 9 hepatocyte cells.
MATERIALS and METHODS: Initially, the amount of acrylamide toxic to half of the cells was determined by MTT assay. Then, one group of cells was treated with acrylamide for 24 h, while one group of cells was used as control. 24 h later, the cells' media were removed and cells were fixed with ice-cold methanol. Then, cells were treated with triton X, primary antibody and secondary antibody, respectively. The samples stained with Immunocytochemistry and hematoxylin-eosin staining were observed under a microscope.
RESULTS: The IC50 value of acrylamide for clone 9 cells was determined to be 5.44 mM by MTT test. According to immunocytochemistry results, GLUT 2 expressions were detected to increase in acrylamide-treated groups when compared to untreated group. Hematoxylin eosin staining showed that acrylamide caused degenerative changes such as cellular shrinkage and nuclear condensation.
CONCLUSIONS: To sum up, to our knowledge, we, for the first time, examined GLUT 2 expressions in acrylamide-treated hepatocytes. Further studies are needed to enlighten the exact mechanism of acrylamide-induced GLUT 2 alteration.
Keywords: Acrylamide, MTT, GLUT 2, immunocytochemistry

OP-077
CORRELATION BETWEEN PHENOLIC INGREDIENTS AND LIFE SPAN EFFECTS OF ASPARAGUS OFFICINALIS L

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OBJECTIVES: Asparagus officinalis L. is native for northern Africa, Europe, western Asia and Mongolia. The aim of this study was to determine dose-

dependent relations between phenolic ingredients and life span effect and fertility of Asparagus officinalis in Caenorhabditis elegans which was accepted as useful experimental model organism for examination on longevity. MATERIALS and METHODS: In this study, five experimental groups (1, 2, 4 5, 10, mg/ mL Asparagus officinalis infusions and one control group) were used to determine the most effective dose of Asparagus officinalis in terms of life span and fertility properties. For fertility effect of Asparagus officinalis, quantitation of constitutive egg-laying was performed according to the standard protocol described by Michael Koelle. Briefly, after mature nematodes were paleced in dishes, the number of eggs is determined by the end of each 30-minute X 20-lens microscop. Also, the life span analysis experiments were performed according to the standard protocol described by Sutphin and Kaeberlein RESULTS: It was observed that, Asparagus officinalis infusions of 1,2 and 4 mg/mL, had the potential to promote for the longevity and fertility properties of Caenorhabditis elegans although higher (5 and10) mg/mL concentrations did not promote on those parameters CONCLUSIONS: These results indicated that Asparagus officinalis may be used as a supplement to prolong life span and fertility properties for the other living organisms and human beings, but the dose should be carefully considered to avoid unfavorable effects. Keywords: Asparagus officinalis L, Caenorhabditis elegans, Life span, Fertility, Phenolics

OP-078
HYPERTYROIDISM INCREASES TRPV1 ACTIVITY IN RAT BRAIN AND CEREBELLUM

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OBJECTIVES: In hyperthyroidism,the thyroid gland produces excess thyroxine hormone and increases reactive oxygen radicals.Oxidative stress changes antioxidant levels of various tissues,including brain regions.Transient receptor potential vaniloid 1 (TRPV1) is a non-selective cationic channel whose activity is affected by various pathological conditions and oxidative stress.There is insufficient study of how TRPV1 channels are affected by hyperthyroidism.In this study,it was aimed to investigate the relationship between oxidant and antioxidant levels of TRPV1 in brain tissue of hyperthyroid rats. MATERIALS and METHODS: A total of 20 adult male Wistar albino rats were divided into two groups (control and hyperthyroidism) in our study.In order to establish hyperthyroidism model,12 mg / L thyroxine hormone was added to the drinking water of rats for 4 weeks.At the end of the experiment, T3,T4, TSH,total antioxidant capacity and total oxidant levels were measured by ELISA. Total antioxidant capacity (TAC) and total oxidant levels (TOS) of the brain and cerebellum tissues were measured by ELISA method.In addition,TRPV1 expressions were examined by immunohistochemistry and western blot methods. RESULTS: TSH and TAC levels decreased;T3,T4 and TOS levels increased in hyperthyroidism group.According to immunohistochemistry results,while the control group showed weak staining in brain and cerebellar cortex neurons,TRPV1 expression was intense positive hyperthyroidism group.There is no reaction in hippocampal neurons in both control and hyperthyroidism groups.Western blot analysis showed that TRPV1 expression was higher in brain and cerebellum tissues of hyperthyroidism group than control. CONCLUSIONS: Hyperthyroidism increases the expression of TRPV1 in brain and cerebellum cortex neurons and is probably due to oxidative stress. Keywords: Hyperthyroidsm, brain, cerebellum, TRPV1.

OP-079
THE ROLE OF PROSTAGLANDIN E2 IN DIABETIC NEPHROPATHY

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OBJECTIVES: Diabetic nephropathy (DN) is a microvascular complication characterized by the presence of relatively common urinary albumin expression, diabetic glomerular-lesions, and pathologic quantities of glomerular filtration rate (GFR)'s loss in patients with type I and II diabetes mellitus.Several factors play a role, especially on the DN, such as vascular pressure.Although prostaglandins (PG) are mainly vasodilator-effective, they do not play an essential role in the regulation of renal hemodynamics in normal humans. However, if the underlying glomerular disease is renal insufficiency, PGE2 is one of the factors that maintain the renal blood flow and GFR by decreasing the preglomerular resistance.We aimed to evaluate the efficacy of PGE2 values in DN patients treated with hemodialysis treatment in our study. MATERIALS and METHODS: Patients who had undergone an old and new diagnosis, taking oral-antidiabetic and insulin-treatment and whose renal function was impaired were included in the study dialysis centers.Patients were composed of 22-patients in the nephropathy group and 17-patients in the healthy control group. The serum PGE2 values were determined by ELISA. RESULTS: PGE2'serum concentrations in DN group were significantly higher than control group.
CONCLUSIONS: Recent studies have investigated the effects of PGE2 on changes related to immunodeficiency, inflammation and oxidative stress, cardiovascular diseases,diabetes and metabolic syndrome.Results suggest that insulin insufficiency and high blood glucose in DN patients may disrupt supply of cytokine-gamma-linolenic acid cis-linoleic acid and decrease prostaglandin formation. In this case feedback regulation can increase PGE2 production.The altered PG metabolism may be responsible for the development and progression of vascular complications. Keywords: Diabetic nephropathy, prostaglandin, PGE2

OP-080
EVALUATION OF PROTEIN OXIDATION IN STREPTOZOTOCIN INDUCED DIABETIC RATS

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OBJECTIVES: Diabetes mellitus (DM) is a chronic disorder.Methylglyoxal (MGO), a precursor of advanced glycation endproducts (AGE), is detoxified in the organism by Glyoxalase through Glyoxalese I (GLO I) and GLO II.This study was aimed to investigate AGE formation in a diabetic rat model induced by streptozotocin (STZ) and the possible role of melatonin MEL. MATERIALS and METHODS: Four study groups, each containing ten Sprague Dawley rats, were defined as control, MEL, STZ and STZ-MEL. STZ and STZ-MEL groups were given a single 50 mg/kg dose of STZ to induce diabetes. MEL, 25 mg/kg was given intraperitoneally to MEL and STZ-MEL groups. At the end of study, the levels of MGO, GLO I and GLO II enzymes were also determined in only tissue samples. RESULTS: Blood and urine glucose levels were found to be high in rats. STZ group had been shown to have higher tissue MGO levels and lower GLO I and GLO II activities, MEL treatment had suppressed high levels of MGO and increased enzymatic activities in STZ-MEL group. CONCLUSIONS: This study, we have shown that reducing MGO tissue levels in chronic diabetes to almost normal level and that the GLO system suppressed in diabetic rats are preserved with MEL,GLO I and GLO II activities increased. It has been shown that STZ induced diabetic rats had high MGO levels and the supression of GLO detoxification system indicates that AGE formation in diabetes is inevitable. Therefore, the usage of antioxidants such as MEL may be suggested to prevent daibetic complications. Keywords: protein oxidation,diabetes, methylglyoxal

OP-081
EFFECTS OF BORIC ACID ON HEART TISSUE DAMAGE CAUSED BY RENAL ISCHEMIA/REPERFUSION

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OBJECTIVES: Ischemia/reperfusion(I/R) has an important place in various heart diseases. In this study, it was aimed to investigate the effects of boric acid(BA), which is known contribution to antioxidant defense system on heart tıssue damage caused by renal ıschemıa/reperfusıon. MATERIALS and METHODS: In our study, 35 Spraque Dawley rats were randomly divided into five groups as sham, I/R, I/R+50-mg/kg-BW-BA, I/R+100-mg/kg-BW-BA, I/R+200-mg/kg-BW-BA. Ischemia was performed at the I/R groups for 45-minutes from the left renal artery. After this procedure was performed 24-hour reperfusion. In the I/R+BA groups, BA was administered intraperitoneally 10-min before reperfusion. Myeloperoxidase(MPO) and catalase(CAT) enzyme activities were measured in surgically taken heart tissues. RESULTS: MPO, increased significantly in the I/R group compared to the sham group($p<0.01$). There was statistically significant decrease in MPO level compared to I/R group in the group to which 50-mg/kg-BW-BA was applied in the BA applied groups($p<0.01$). CAT, was significantly reduced in the I/R group compared to the sham group($p<0.01$). CAT levels were significantly elevated in the 50-mg/kg-BW-BA group compared to the I/R group($p<0.01$). CONCLUSIONS: In our study, inflammatory and antioxidant effects on the heart tissue were investigated as distant tissue damage resulting from renal I/R. Renal I/R may weaken the antioxidant system while increasing the inflammatory effect in the heart. One of the studies on the mechanisms of action of boric acid is the association with the inflammatory response. It has been shown in our study that boric acid may reduce increased inflammation. Also, we believe that the antioxidant properties of BA contribute to the antioxidant system. Keywords: Renal Ischemia/Reperfusion, Boric Acid, Heart, Inflammation, Osditaif Damage

OP-082
NEUROPROTECTIVE EFFECTS OF BORIC ACID ON BRAIN AGAİNST RENAL ISCHEMIA/REPERFUSION INJURY

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OBJECTIVES: Renal ischemia/reperfusion (I/R) may cause distant tissue damage. Boric acid (BA) with antioxidant properties is suggested to be a protective agent against I/R injury. The aim of this study was to investigate the neuroprotective effects of boric acid on brain against renal I/R induced oxidative damage.
MATERIALS and METHODS: 35 rats were divided into five groups: sham, I/R, I/R+50mg/kg BA, I/R+100mg/kg BA and I/R+200mg/kg BA. Sham group was only subjected to surgical stress procedure. In I/R group, left renal artery was isolated and ischemia was induced for 45 minutes with atraumatic vascular clamp, then followed by 24-hour reperfusion. In I/R+BA groups, BA was administered intraperitoneally 10 minutes before reperfusion, unlike the I/R group. In rat brain tissues MDA levels, GSH levels, SOD activities and NO levels were measured spectrophotometrically.
RESULTS: Renal I/R caused a significant increase in MDA and NO levels as compared to the values of the control group (P<0.01), but caused a decrease in GSH levels and SOD activities.Conversely, rats treated with BA prior to reperfusion showed a significant reduction in the brain MDA and NO levels as compared to renal I/R group, on the other hand was an increase in GSH levels and SOD activities.
CONCLUSIONS: This study showed protective effects of BA on brain tissue against renal I/R injury. BA treatment can decrease lipid peroxidation levels and increase antioxidant enzymes activities in brain hippocampus of renal I/R induced rats. Our results indicate that BA is useful for brain function maintaining in renal I/R induced rats.
Keywords: Renal Ischemia/Reperfusion, Brain, Boric Acid, Oxidative Damage, Neurodegeneration.

Introduction
Kidney have an important role in the maintenance of the body's hemostatic balance and in the elimination of toxic products [1]. Renal ischemia-reperfusion (IR) damage is a major cause of acute renal injury (AKI). The main cause of the high mortality rate in the case of AKI is due to distant organ damage [2,3]. Renal IR induces oxidative stress by increasing the production of reactive oxygen and nitrogen species (ROS and RNS, respectively) that lead to an increase in lipid peroxidation and reduce in antioxidant capacity (4). It has been demonstrated that renal IR caused a significant reduction in antioxidant levels in the hippocampus [5-9]. Boric acid (BA), which is mostly present in the form of compound in nature, is a trace mineral for livings [10]. Boric acid is rapidly absorbed by the gastrointestinal tract and is spreaded through the body by passive diffusion [11]. It has been reported that BA scavenged ROS and supported antioxidant mechanisms by increasing the levels of enzymatic and non-enzymatic antioxidant molecules [12-15]. It is not known precisely whether BA can prevent to brain damage in renal IR-induced rats. Therefore, in current study, we evaluated the possible neuroprotective effects of BA on brain in renal IR-induced rats.
Materials and Methods
Animals: This study was conducted with thirty five healthy Spraque Dawley adult female rats (weighing 250±30 g) obtained from the Medical and Surgical Experimental Research Center, Eskisehir. Experimental procedures were carried out according to the decision of Animal Experiments Local Ethics Committee of Eskisehir Osmangazi University (Approval number: 657).
Study design: All surgical procedures were performed under anesthesia. Anaesthetized all animals underwent right renal nephrectomy under sterile conditions. Following, each animal was placed separately in cages and allowed to heal for 15 days. In the experimental design, the rats were randomly divided into five groups (sham, IR, IR+50mg/kg BA, IR+100mg/kg BA, IR+200mg/kg BA groups) of seven animals in each group.
At the end of the 15-day recovery period, 0.5 mL saline or BA were injected intraperitoneally 10 minutes before the reperfusion period without ischemia. After 24 hours of reperfusion, the experimental animals were sacrificed under anesthesia. Brain tissues were removed quickly and stored at -80°C until analysis.
Biochemical assays: Malondialdehyde (MDA) levels were measured according to the method reported by Ohkawa et al [16]. The results were indicated as nmol/mg protein.
Glutathione (GSH) levels were determined according to Srivastava and Beutler [17]. Brain GSH levels were expressed as µmol/mg protein. Nitric oxide (NO) measurement was based on the measurement of nitrite and nitrate due to oxidation of nitric oxide. The amount of nitrite was measured precisely according to the method also known as the Griess reaction (18). The results were expressed as µmol/mg protein. Superoxide dismutase (SOD) activity was measured according to the method of Sun et al [19].
The result were indicated as Unit/mg protein. Protein contents of brain was measured by the biuret method [20].
Histopathological examination: Brain tissues were washed in phosphate buffer at pH 7, and then immediately placed in 10% neutral formaldehyde solution for histological analysis. Brain samples were embedded in paraffin and 4 µm sections were obtained by using microtome (Leica RM 2025). Hematoxylin and eosin were applied to sections and they were closed with poly-L-Lysine coated slides. Histopathological examinations of stained brain sections were performed using light microscopy (Olympus CH40). The histopathological levels were graded according to changes observed as follows: no damage with 1, moderate damage with 2, great damage with 3. The mean of all numerical scores in each group was evaluated as the total histopathological score.
Statistical analysis: Results are stated as standard error of means (±SEM). Data were analyzed by utilizing one-way analysis of variance (ANOVA) on the SPSS version 21.0 for Windows. Post hoc Tukey HSD and Tamhane's T2 tests were used for multiple comparisons. The value of p <0.05 was accepted to be significant.
Results
Effects of BA on GSH, SOD, MDA and NO levels in brain tissue: We found that renal IR caused significantly a 45% and 29% decrease in GSH and SOD levels compared with sham group, respectively (Table 1). BA treatment at doses of 50 and 100 mg/kg prior to reperfusion resulted in an improvement in GSH levels and SOD activities. Renal IR was found an increase in lipid peroxidation and a decrease in NO levels compared with sham group (40% and 27%, respectively). 50 and 100 mg/kg BA treatment caused a significant reduction in MDA and an increase in NO levels. On the contrary, high dose BA (200 mg/kg) treatment caused a decrease 43% in GSH, 24% in NO and 27% in SOD levels and an increase 55% in MDA levels.
Effects of BA on histological changes: Brain tissues were evaluated histopathologically for the presence of neuronal damage, dilated vascular structure and necrotic cells. In the sham group was observed a healthy brain appearance together with neurons and glial cells in the cortical aria (histological score, hs=0) (Figure 1, A1-A2). Intensive cellular damage, cortical area damage, dilated vascular structures and necrotic cells were detected in the brain tissues of IR group (hs=3***a) (Figure 1, B1-B2). In IR+50mg/kg BA group, a few dilated vascular structures and necrotic cells in the cortical area as well as normal appearance of neurons suggested that BA reduced ischemic damage in brain tissue (hs= 1.14±0.73***b) (Figure 1, C1-C2). In the IR+100mg/kg BA group, several dilated vascular structures in the cortical area showed that BA improved tissue damage compared to the IR group and histologically provided neurons and glial cells similar to the sham group (0.57±0.12***b) (Figure 1, D1-D2). The dose of 200 mg/kg BA was not as effective as the others against brain damage induced by renal IR (2.51±0.45) (Figure 1, E1-E2). All data are expressed as mean± SEM. a: As compared to sham group. B: as compared to IR group. ***p<0.001.
Discussion
Renal IR injury is a serious issue affecting various physiological and biochemical processes such as multiple organ failure, remote organ injury and clinical operations [21]. Our results indicated that renal IR in rats induced the adverse effects on the brain as a remote organ. Histopathological examinations consistent with increased MDA and NO levels and reduced antioxidant capacity supported that brain damage in rats that may be related to renal IR-induced oxidative stress. This is the first reported study to display the neuroprotective effect of BA as a ROS scavenger on renal IR-induced brain injury. Oxidative stress is actually expressed as an increase in intracellular production of ROS resulting from the imbalance between pro-oxidant and antioxidant mechanisms [22].
Our results consistent with previous studies, after 45 min of ischemia followed by 24 h of reperfusion, significant decreases in brain GSH levels and SOD activities and an increase in MDA level were observed [23]. In addition, many studies have shown that renal IR leads to histologically organ damages such as congestion, necrotic cells, cellular infiltration and vascular endothelial damage [24].

Table 1. Effects of BA on some oxidative and antioxidant parameters on the brain tissue.

Groups	GSH Levels (µmol/mg protein)	NO Levels (µmol/mg protein)	SOD Activities (Unit/mg protein)	MDA Levels (nmol/mg protein)
Sham	9.57±1.12	143.68±13.84	275.39±25.36	12.26±3.51
IR	5.31±2.34***a	106.13±8.62***a	196.48±14.73***a	17.21±2.68***a
IR+50mg/kg BA	6.35±1.16*b	134.08±15.37***b	208.95±12.31*b	15.72±1.24*b
IR+100mg/kg BA	8.54±1.05**b	128.61±13.72**b	257.49±16.43**b	14.39±1.62***b
IR+200mg/kg BA	5.46±1.07	109.46±21.19	201.03±22.47	18.97±2.16

Post hoc Tukey HSD test was used for comparison among the experimental groups. All data are expressed as mean ±SEM (n=7 in each group). a: As compared to sham group. b: As compared to IR group. *p <0.05, **p <0.01, ***p <0.001. BA: Boric acid. IR: Ischemia-reperfusion. GSH: Glutathione. MDA: Malondialdehyde. NO: Nitric oxide. SOD: Superoxid dismutase.
In the current study, BA treatment significantly increased GSH levels and SOD activities and decreased MDA and NO levels, which is showed that BA acts as a ROS scavenger. In addition, BA provided histological improvement by decreasing the number of necrotic cells and dilated vascular structures in the brain tissue. In accordance with the literature, we found that high-dose BA (200 mg/kg) treatment has been shown to have toxic effects by reducing antioxidant capacity and increasing lipid peroxidation [25].
Overall, renal IR causes damages in brain functions and structures which are important for continuity of neuronal processes. To date, no studies have been investigated the neuroprotective effect of BA against renal IR-induced brain damage. Our results indicate that renal IR injury causes changes in brain histological structure, and BA treatment in low doses (50 and 100 mg/kg) may improve these disorders.

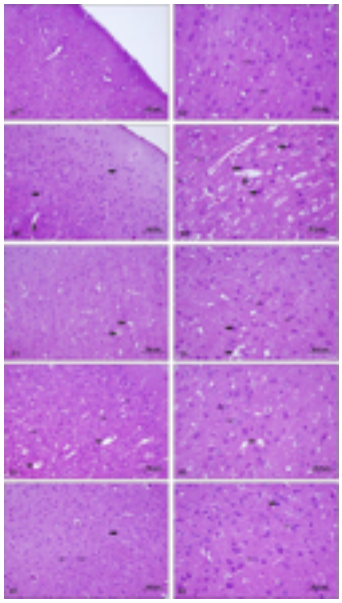

Figure 1. Effects of boric acid on renal IR-induced brain damage in rats. Representative sections of the brain stained with hematoxylin and eosin. Light microscopic images of the brain of rats from sham group (A1-A2), IR group (B1-B2), IR+50mg/kg BA group (C1-C2), IR+100mg/kg BA group (D1-D2) and IR+200mg/kg BA group (E1-E2). →: Normal neurons. Δ: Dilated vascular structures. : Necrotic cells.

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Ethical Considerations: This study was approved by the Animal Care and Use Committee of the Eskişehir Osmangazi Universiy (Approval number: 2018/657).

Conflict of Interest: The authors report no conflict of interest.

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OP-083

RENAL ISCHEMIA-REPERFUSION EFFECT ON SPLEEN AS REMOTE TISSUE DAMAGE AND ROLE OF BORIC ACID

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OBJECTIVES: Recent studies have shown the effects of distant tissue on renal ischemia/reperfusion (I/R) damage in some organs such as the brain, liver, pancreas and spleen. The aim of this study was to examine the therapeutic effect of Boric Acid (BA) due to the properties of different doses against distant tissue splenic injury, which is caused by oxidative stress induced by renal I/R.
MATERIALS and METHODS: In the study, 35 Spraque Dawley rats were divided into five groups 7 animals in each group. Sham, I/R, I/R+50mg/kg BA, I/R+100mg/kg BA and I/R+200 mg/kg BA. Ischemia was induced for 45 minutes, followed by 24 hours of reperfusion. In I/R+BA groups, BA was administered intraperitoneally 10 minutes before reperfusion, unlike the I/R group. MDA, GSH, and NO levels were measured spectrophotometrically in rat spleen tissues.
RESULTS: Regarding the spleen tissue, there was statistically significant decrease in GSH levels and significant increase in MDA and NO levels in the renal I/R group compared to the sham group and BA groups ($P<0.01$). In contrast, compared to the I/R group treated with BA at different doses prior to reperfusion, 50 mg/kg BA administration showed significant decrease in MDA and NO levels, while an increase in GSH level was observed.
CONCLUSIONS: In this study, it was concluded that 50 mg/kg BA is the most appropriate dose because Boric acid is a moderately toxic compound. BA demonstrates a protective effect against oxidative stress on the spleen as distant tissue damage in rats subjected to renal I/R.
Keywords: Renal Ischemia/Reperfusion, Spleen, Boric Acid, Oxidative Damage

Introduction

Renal ischemia reperfusion (I/R) injury may occur in various clinical conditions such as multiple organ damage, inflammation, shock, and surgery [1]. As a result of distant tissue damage of renal I/R, it causes morbidity and mortality due to multiple organ failure. Although many studies have shown that kidney damage affects different distant organs such as the lungs, liver and pancreas but the effect on the spleen is still unclear [2].

Reactive oxygen species (ROS) and inflammation processes are the mechanisms used in the pathogenesis of remote organ injury [3]. Reactive oxygen species are highly unstable oxygen molecules that can cause cellular damage by affecting the inflammatory markers as well as by oxidizing lipids in the cell membrane structure [4]. The role of oxidative stress in spleen injury has been shown in several studies [5]. Endogenous antioxidants such as superoxide dismutase (SOD) and catalase (CAT) and glutathione (GSH) reduce ROS production in renal I/R-induced distant tissue damage. Therefore, new drugs and compounds known to have exogenous antioxidant properties are widely investigated in ischemia and reperfusion injury [5]. Renal I/R can induce inflammatory response with the synthesis of chemokines and cytokines affected by oxidative stress and activate the immune response. The synthesis of proinflammatory cytokines such as IL-6 and TNF-α plays an important role in the development of inflammatory reaction and acute kidney injury (AKI) [6].

The regulation of inflammation occurring during renal I/R depends on the effect of the spleen, which is one of the most important immune organs in the body, on inflammatory mediators. The spleen appears to play an important role in cytokine production and disease progression, indicating a potential therapeutic target for a number of ischemia-related diseases [7]. More research is needed to clarify the role of the spleen in damage caused by ischemia-reperfusion and to develop new therapeutic strategies.

Boron, Boric acid (BA) and its compounds, which are considered as essential

elements by the World Health Organization, regulate antioxidant system activity and immune system functions in human and animal metabolism [8]. Previous studies have shown that both boric acid and borate perform reversible interactions with biomolecules containing cis-hydroxyl groups and affect NAD+ functions [9]. There are limited studies on how boric acid reduces ROS effects by inducing antioxidant defense mechanisms and inflammation process [10, 11]. The use of boron and its compounds (BA) in medicine is increasing day by day. Specifically, determining dose studies and explaining mechanisms are extremely important [12].

The purpose of this study is to investigate the effects of 50, 100 and 200 mg/kg BA on the antioxidative activities and proinflammatory cytokines of the spleen tissue in renal I/R-induced Sprague Dawley (SD) rats. In addition, the histological effects of boron on the spleen tissue structure were studied.

Material and Methods

Animals and Surgical Procedure: The ethics committee for the study received 657 decision numbers from Eskişehir Osmangazi University Animal Experiments Local Ethics Committee (HADYEK). 3-4 months old SD female rats, weight between 180 to 220 grams, were used in this study. A total of thirty five rats were randomly divided into five groups (n=7). The rats were maintained in rooms that had 12:12 light/dark illumination, heat (22±2ºC) and humidity (45-50%) automatically adjusted during the experiment. Animals were allowed to adapt to ambient conditions for one week before starting the experiment.

Group 1 animals were determined as sham operation group. Nephrectomy was performed in this group of animals, and after 15 days of healing, 0.5 ml saline was injected intraperitoneally without ischemia. Group 2 animals were determined as I/R group. Nephrectomy was performed in this group of animals, and after 15 days of healing, 45-minute ischemia was performed to each animal. 0.5 mL of saline was injected intraperitoneally to the rats 10 minutes before the reperfusion time. Groups 3, 4 and 5 were determined as treatment groups with 50, 100 and 200 mg/kg BA, respectively. Firstly, nephrectomy was performed to the animals in these groups and then the determined BA doses were administered intraperitoneally by dissolving in 0.5 ml of saline after 15 days of recovery. All the animals were sacrificed by taken intracardiac blood under anesthesia at the end of 24-hour reperfusion.

At the end of the experimental procedures, intracardiac blood and spleen were collected from the animals for biochemical analysis. Blood samples were centrifuged at 3000 rpm for 10 min to obtain serum. The spleen tissues and serum samples of each animal in the groups were stored in the - 80°C freezer until analysis time.

Biochemical Analyses of Spleen Tissues: The levels of malondialdehyde (MDA), glutathione (GSH) and nitric oxide (NO) were determined manually by using spectrophotometric methods with the obtained spleen tissue supernatants. In the measurement of oxidative stress markers in spleen tissues, lipid peroxidation was measured according to the method of MDA used by Ohkawa et al. [13]. GSH levels were measured in spleen tissue homogenate according to the method reported by Beutler et al. [14]. For the measurement of NO levels in tissue samples, the method reported by Cortas was applied [15]. TNF-α and IL-6 levels from proinflammatory cytokines were measured according to the Quantikine manufacturer's instructions and guidelines using the enzyme-linked immunosorbent assay (ELISA) kit specific for rat cytokines. Protein contents of spleen tissues was measured by the biuret method mentioned in Gornall's study [16]

Histological Analyses of Spleen Tissues: Spleen tissues were obtained 24 h after reperfusion in all groups. Tissue specimens were fixed in 10% formalin and embedded in paraffin. Sections were cut 5-µm thick and stained with hematoxylin–eosin for light microscope examination. The light microscopic images of the rat spleens of all experimental groups were evaluated at different magnifications.

Statistical Analyses: The results of the methods mentioned in this study were analyzed as mean ± standard deviation (SD) and using SPSS 21.0 for Windows. The difference between the mean values between the groups was evaluated using one-way analysis of variance (ANOVA). In all reported p values, $p<0.01$ was considered significant. All comparisons were made between the sham, I/R and BA treatment groups.

Results

MDA, NO, GSH and TNF-α, IL-6 levels in splenic tissue samples of all groups: Statistical analysis using the data obtained from laboratory analysis is presented in this section. Proinflammatory cytokine levels (TNF-α, IL-6) and oxidative stress parameters (MDA, GSH and NO) were determined in rat spleen tissue. Our previous studies have shown the effects of serum BUN, creatinine levels and other biochemical and histological analyses on renal injury after I/R [17]. This study has shown for the first time that different doses of BA may affect the various steps of renal I/R pathophysiological pathways and distant tissue spleen damage. The results of MDA, GSH and NO levels in spleen tissues are shown in Table 1.

Table 1: The effects of 50,100 and 200 mg/kg boric acid (BA) treatments on MDA, NO, GSH and TNF-α, IL-6 levels in splenic tissue of rats induced by renal ischemia-reperfusion (I/R) (Means ± SD).

Parameters	Group 1(n=7)	Group 2(n=7)	Group 3(n=7)	Group 4(n=7)	Group 5(n=7)
MDA (nmol/mg protein)	3.03 ± 0.37	8.17 ± 0.40a	5.02 ± 0.34a,b	6.58 ± 0.40a,b	7.14 ± 0.32a,b,c
NO (µmol/mg protein)	26.23 ± 1.67	35.49 ± 1.77a	29.45 ± 0.94a,b	31.91 ± 0.59a,b	33.0 ± 0.69a
GSH (nmol/mg protein)	11.78 ± 0.97	6.59 ± 0.84a	8.97 ± 0.54a,b	7.87 ± 0.46a	7.16 ± 0.43a
TNF-α (pg/mg protein)	21.92 ± 1.31	84.59 ± 1.44a	50.21 ± 2.49a,b	75.66 ± 3.50a,b,c	81.48 ± 1.64a,c
IL-6 (pg/mg protein)	14.28 ± 1.53	59.71 ± 2.18a	36.68 ± 1.03a,b	51.74 ± 2.27a,b,c	56.41 ± 1.41a,c

a : $p<0.01$ compared with Group 1, b : $p<0.01$ compared with Group 2
c : $p<0.01$ compared with Group 3

Compared to the sham group (Group 1), NO and MDA levels were significantly higher in splenic tissue of the I/R group (Group 2). NO and MDA levels were significantly lower in the BA groups (Group 3, 4 and 5) administered at different doses compared to the I/R group. The GSH levels of the spleen tissues was significantly lower in the I/R group compared to the sham group. In addition, there was a significant increase in BA-treated groups compared to I/R group ($p<0.01$).

The level of proinflamatuar cytokines TNF-α and IL-6 levels were increased in the I/R groups compared to sham. While 50 mg/kg BA resulted in a moderate decrease in TNF-α and IL-6 levels compared to I/R group ($p<0.01$), no significant difference was observed in other 100 and 200 mg/kg BA applications (Table 1).

Histological analysis of spleen tissues : The light microscopic images of the rat spleens of all experimental groups are shown in Figure 1. The cortex and parenchymal tissue of the sham group rat spleen were normal. In the spleen of ischemia group, white pulp degeneration and red pulp contraction were observed with parenchymal tissue damage. It also drew attention to the thickened trabecular structures. It was observed that parenchymal tissue damage decreased and white pulp and red pulp structures were observed close to normal in rat spleen belonging to group 3. Thickening was observed in trabecular structures. The parenchyma tissue damage decreased in the rat spleens belonging to the group 4 and white pulp, red pulp and trabecular structures were observed to be close to normal. Parenchyma tissue damage decreased in rat spleens belonging to group 5, while some white pulp damage was observed to continue, but near-normal spleen structure was observed.

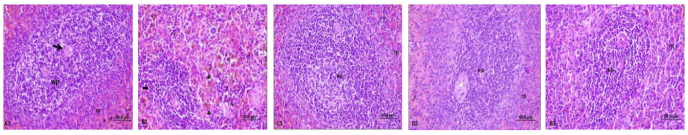

Figure 1: Light microscopic images of the rat spleens of different experimental groups (HE, scale bar: 50.0µm).

Discussion

The spleen plays an important role in maintaining the body's normal immune function. Oxidative stress and other processes caused by renal ischemia reperfusion may affect functional changes on the spleen and directly affect the immune and resistance of the body [18]. Boron is a necessary trace element with various functions for living organisms. Like many trace elements, because of high doses and long-term use, it can cause toxic effects on tissues and organs [19].

The most likely mechanism is the inactivation of ROS by acting as a ROS cleanser because BA increased glutathione levels in this study while decreasing MDA and NO levels. However, in the studies performed to determine the appropriate dose, better results were obtained in the groups given 50 mg/kg BA ($p<0.05$). 5 and 10 mg/kg BA showed that serum MDA levels were significantly decreased and serum total antioxidant capacity (TAC) levels increased and this could lead to antioxidant activity by decreasing lipid peroxidation in Çakır et al. study [20]. In another study conducted, it has been shown that the appropriate amount of boron addition increases the activity of antioxidant enzyme and decreases lipid peroxidation by increasing free radical clearance of the spleen [21]. Therefore, low boron concentration may promote spleen development and functions during I/R. The addition of 80-640 mg/L boron in drinking water has been shown to seriously impair the development of the spleen and immune function. In addition, it has been shown that by adding 80 mg/L boron concentration, MDA content increases and antioxidant enzyme activities decrease, this concentration causes significant negative effects on spleen antioxidant function and oxygen [22]. New drug development and treatment strategies have been targeted on oxidative stress after RIR injury, including inhibition of superoxide formation or increased antioxidants. Some researchers have found that selective blocking of NO production sheds light on the underlying molecular mechanisms that cause oxidative stress due to I/R injury and its effects on other tissues. These results were consistent with the data we found in our previous and present study [17]. In a similar study, the use of high-dose boron decreased the spleen weight at different degrees and histopathological changes of the spleen were observed [21]. Reperfusion with activation of macrophages in tissue causes an increase in proinflammatory cytokine levels such as IL-6 and TNF-α. This results in damage to distant organs [23] In the study evaluating inflammation processes after I/R, BA has been shown to reduce the release of proinflammatory cytokines such as TNF-α and IL-6 and protect against cell death caused by oxidative stress [24]. Our findings are consistent with the current literature, but dose studies on humans and animals should be continued.

In some experimental studies, the potential roles and some functions of spleen are shown in ischemic AKI. Ischemic preconditioning in the spleen has been shown to provide protection from AKI from splenocytes from mice after RIR. Studies have shown that the spleen has some etiology in the RIR and related AKI, but it has not shown that it has a one-way effect [25].

Different roles of the spleen before and after ischemia should be clarified and more research is needed on people. In the experimental studies conducted over many years, the possible signaling pathways and treatment strategies that connect the organs such as kidney, lung, heart, spleen and intestine have been examined not only for ischemia but also for some other diseases. In this study, we have focused on spleen as distant organ effects of RIR from a oxidative stress and preinflammatory perspective. Targeting remote tissue damage pathways and new drug substances identified as dose studies such as Boric acid should lead to new therapeutic strategies against AKI and reduce high mortality during AKI-related multiple organ failure.

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Conflict of interest statement: The authors report no conflict of interest.

Ethical Considerations: This study was approved by the Animal Care and Use Committee of the Eskişehir Osmangazi Universiy (Project No: 2018/657).

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OP-084

THE VIEW OF THE STUDENTS ABOUT BIOCHEMISTRY COURSE FROM MIDDLE EAST COUNTRIES

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OBJECTIVES: This study was done to investigate the demographic background of incoming students from Middle Eastern countries and to evaluate their biochemistry education and academic success
MATERIALS and METHODS: The study included the students from Middle East countries Term I (n=29) and Term II (n=17) of Cyprus Health and Social Sciences University Faculty of Dentistry. Biochemistry is taught for 2 hours (lectures) every week in the curriculum (academically oriented, theoretically). Students' academic performance was evaluated with quizzes, midterm and final exams.
RESULTS: Overall, the study included 46 students (58.7%, n=27, male and 41.3%, n=19, female). The demographic background of students was: 30.43% from Iran, 23.91% from Syria, 8.75% from Iraq and 6.55% from Egypt, 4.35% from Jordan. The rest, 2.17% came from other countries (Bahrain, Afghanistan, Pakistan, TC, USA, Germany, Lebanon and Palestine). The questions of main subjects were evaluated separately and as an example from the group of lipid questions about 57.89% of the students were successful. According to the final exam, 47.36% of these students in Term I were successful while 59.09% of the students in Term II were successful.
CONCLUSIONS: The main purpose of biochemistry course at universities is the association of the basic structure and functions of macromolecules to human metabolism. Instructors need to review their course content for the students and use new methods for the understanding of the lessons. Besides all, incoming students from Middle East countries have more problems with language or adaptation. This situation is reflected to their academic success. As a result, we thought that it would be appropriate to give basic theoretical knowledge in the biochemistry curriculum of the related faculty.
Keywords: Biochemistry, Health Science Education, Descriptive Analysis

OP-085

TRANSITION TO GLUCOMETER INTEGRATED TO THE INFORMATION MANAGEMENT SYSTEM: A SURVEY STUDY

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OBJECTIVES: The Point of Care Testing is a test performed at or near the patient resulting in possible changes in patient care. In our 500-bed hospital, 40 manual glucose meters and 15.000 strips are used monthly in various clinics. However, our laboratory could not follow these tests thoroughly because of the high number of users. Therefore, as of 01.01.2018, the glucose meters was integrated to the Laboratory Management Information System (Accu-Check Inform II, Roche). Later, a survey study was conducted to observe the effects of this change in the clinics.
MATERIALS and METHODS: Face to face interviews were conducted with 27 nurses and 27 physicians from Internal Medicine, Intensive Care, Physical Therapy, ENT and Emergency departments using 10 elective questions.
RESULTS: According to the results, we were informed that our physicians and nurses were satisfied with the continuous training given by our laboratory, the results of the new system and the users' being registered into the system, and the fast and retrospective obtaining of the results. Besides, according to the survey result, there is a request to increase the number of devices and of the measurement of ketone level at the same time with that of the glucose.
CONCLUSIONS: The results and following-up of the users through the information system will both raise user awareness and protect the employees legally. The advantages of the system are the reliability of the results, the central laboratory's easy following-up the internal quality controls, the names of the users, the quality indicators and the number of strips.
Keywords: Glucometer, Point of Care Testing, Laboratory Management Information System

OP-059

A PRACTICAL APPROACH FOR IDENTIFYING HBS OR HBD VARIANTS IN ELECTROPHORESIS: THE SOLUBILITY TEST

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OBJECTIVES: The most common hemoglobin variant in our country after hemoglobin S (HbS) is HbD-Punjab (Punjab). HbD disease usually does not give clinical symptoms unlike HbS disease having genetic origin which is often seen in the Mediterranean region of Turkey and characterized by severe

hematological crisis. Therefore, similar electrophoretic behavior of the two variants may cause clinical anxiety until differential diagnoses are made. In our study, we aimed to discuss a practical method used to differentiate HbD and HbS variants known by clinical biochemistry laboratories. MATERIALS and METHODS: Firstly, the records of 400 patients with Hb electrophoresis in the last 6 months were evaluated retrospectively. All patient results performed by "Sebia Hydrasys electrophoresis device with alkaline cellulose acetate method were again reviewed. Then, it was evaluated clinical diagnosis and evaluation of the patients who were thought to be HbS or HbD variants and their solibility test results using sodium dithionite and saponin solution were evaluated. In addition, these results were also confirmed by high performance liquid chromatography (HPLC). RESULTS: As a result of our evaluation, it was found that there is a migration compatible with HbS or HbD variants in five patients. When the clinical diagnosis and anamnesis of these patients were examined, it was thought that only two patients might have Hbs variant. When the resolution test results using sodium dithionite and saponin solution for differentiation of HbS and HbD variants were examined, it was determined that Hb variant of the 3 patients who were thought to be HbD was dissolved in solution and Hb variant of 2 patients who were thought to be HbS was insoluble. In addition, the results were also consistent with the HPLC method results. CONCLUSIONS: Differentiation of HbS and HbD variants showing the same electrophoretic migration in the alkaline electrophoresis can be made practically with the solubility test using sodium dithionite and saponin solution.
Keywords: HbS, HbD, The Solubility Test

OP-087
EFFECT OF ANGIOTENSİN (1-7) TREATMENT ON OXIDATIVE STRESS PARAMETERS, IMA AND MPO LEVELS IN DIABETES

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OBJECTIVES: In this study effect of chronic angiotensin (1-7) (Ang1-7), a novel peptide of renin-angiotensin system, treatment on ischemia-modified albumin, myeloperoxidase levels and oxidative stress parameters known to play a role in development of diabetic complications was investigated in diabetic rats. MATERIALS and METHODS: 3 months-aged male rats were grouped into 4: Experimental diabetes was induced with single i.p. streptozotocin (STZ) injection in Diabetes (D, n=10) and Diabetes+Ang1-7 (DA, n=6) and STZ-vehicle was administered to Control (C, n=10) and Control+Ang1-7 (CA, n=8) groups. Four weeks later, 576 µg/kg/day s.c. Ang1-7 for 4 weeks was administered to DA and CA, whereas Ang1-7-vehicle to C and D groups. Thenafter, serum levels of total oxidative stress (TOS, umol/L), total antioxidant capacity (TAS, mmol/L), total sulphydryl (umol/L), advanced protein oxidation products (AOPP, umol/L), ischemia-modified albumin (IMA, U/mL) and myeloperoxidase (MPO, U/L) were measured spectrophotometrically. RESULTS: TOS, AOPP and IMA levels increased (14.69±4.77, 11.19±1.40, 10.85±1.30; 15.51±7.69, 10.42±2.45, 9.86±3.15; 122.20±36.70, 91.40±13.45, 84.60±4.47, respectively) whereas TAS and sulfhydryl decreased significantly (2.08±0.80, 2.83±0.97, 2.85±0.84; 743.10 ± 338.30, 1042.00 ± 104.40, 1046.00 ± 118.40, respectively) in D compared to C and A groups with no significant differences between C and A groups. Although TOS, AOPP, IMA increased whereas TAS and sulfhydryl decreased in D compared to DA, only IMA levels differed significantly (p= 0,049). MPO levels differed significantly only between K and DA. CONCLUSIONS: It was concluded that decreament in certain oxidative stress parameters, especially IMA, and partial increament in antioxidant defenses observed with chronic Ang1-7 treatment may be useful in preventing diabetic complications.
This study was supported by TUBITAK with the project number TUBITAK-SBAG 1175066
Keywords: Angiotensin (1-7), Diabetes Mellitus, Oxidative Stress

OP-088
DETERMINATION OF URINARY PODOCIN AND PODOCALYXIN LEVELS BY LIQUID CHROMATOGRAPHY-MASS SPECTROMETRY

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OBJECTIVES: The detection of podocyte injury is important for the evaluation of renal diseases. Urinary markers of podocyte injury could be defined by the measurement of podocin and podocalyxin in the urine. The aim of this study was to multiplex determinate of urinary podocytes, based on the detection of podocyte-specific tryptic peptides by liquid chromatography-mass spectrometry (LC-MS/MS). MATERIALS and METHODS: Recombinant human podocin, podocalyxin and synthetic stable isotope-labeled tryptic peptides were obtained. Peptide standard solutions were prepared at the following concentrations: 0, 1.562, 3.125, 6.25, 12.5, 25 and 50 ng/µL. RapiGest™SF were added to urine samples before digestion and the samples were incubated at 60◦C for 40 min. Urine samples were digested overnight at 37◦C by the addition of trypsin. The stable isotope-labeled internal standard peptides were added to each sample, then analyzed with positive electrospray ionization mode in a triple quadripole LC-MS/MS. RESULTS: Inter/intra assay precisions and accuracies of the assay were below 10% and between 80% and 100%, respectively. The values of r-squared (r2) were found for podocin 0,999, for podocalyxin as 0,994 in generated calibration curves. The time of the analysis was 12-13 minutes (min) for both parameters (Podocin: 11 min, Podocalyxin: 7 min). The accuracy of the test was also evaluated with ELISA methods. CONCLUSIONS: Our method is a reliable alternative for the simultaneously quantification of podocin and podocalyxin in urine samples. Determination of the urinary podocytes, based on the detection of podocyte-specific tryptic peptides by LC-MS/MS may provide diagnostic and prognostic information in renal diseases.
Keywords: podocin, podocalyxin, LC-MS/MS

OP-089
THE ROLE OF METHYLGLYOXAL LEVELS IN DIABETES DIAGNOSIS

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OBJECTIVES: Diabetes Mellitus (DM) is a metabolic disorder characterized by the presence of chronic hyperglycemia accompanied by impairment in the metabolism of carbohydrates, lipids and proteins. The cause is either impaired insulin secretion or impaired insulin action or both. During chronic hyperglycaemia increased production of methylglyoxal occurs which may result in excessive production of advanced glycation end products (AGEs). Methylglyoxal (MG) is a reactive dicarbonyl intermediate and a precursor of advanced glycation end products (AGEs). Recent studies suggested a role for MG in insulin resistance and beta-cell dysfunction. Our goal in this study is to clarify MG's role in diabetes diagnosis, progression and treatment. MATERIALS and METHODS: 41 control, 34 prediabetic, 40 controlled type 2 diabetic, 34 uncontrolled type 2 diabetic subjects were enrolled to this study. MG levels were measured at 315 nm wavelength in a UV detector using a C18 column in ultra-performance liquid chromatography. RESULTS: Serum MG levels were significantly higher in patients with prediabetes (8,34(3,48-16,42)), controlled (14,51(4,2-31,28)) and uncontrolled (15,81(2,44-33,64)) type 2 diabetes than in controls (4,29(1,86-7,78); p<0.001) for all compared groups. There was no significant difference in serum MG levels between controlled and uncontrolled diabetic subjects (p=0.61). CONCLUSIONS: Our findings demonstrate hyperglycemia increased methylglyoxal and AGEs generation in prediabetic and diabetic patients. Thus MG playing an important role in the pathophysiology of diabetes mellitus. Briefly, we thinks of methylglyoxal levels monitoring in diabetic patients contribute for diabetes diagnosis and treatment.
Keywords: Diabetes mellitus, insulin resistance, methylglyoxal

OP-090
EARLY POSTOPERATIVE CHANGES OF SPHINGOMYELINS AND CERAMIDES AFTER SLEEVE GASTRECTOMY

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OBJECTIVES: This study aimed to determine early postoperative changes of serum sphingomyelin (SM) and ceramide (CER) species following laparoscopic sleeve gastrectomy (LSG). MATERIALS and METHODS: Twenty obese patients [mean body mass index (BMI) 45,64 ± 6,10 kg/m2] underwent LSG and normal weight control patients (mean BMI 31,51 ± 6,21 kg/m2) underwent laparoscopic cholecystectomy. Fasting blood samples were collected prior to surgery, at day 1 and day 30 after surgery. Circulating levels of C16-C24 SMs, C16-C24 CERs and sphingosine-1-phosphate (S1P) were determined by an optimized multiple reaction monitoring (MRM) method using ultra fast-liquid chromatography (UFLC) coupled with tandem mass spectrometry (MS/MS). Ceramide-1-phosphate (C1P) levels were determined by enzyme-linked immunosorbent assay (ELISA). Lipid profile, routine biochemical and hormone parameters were assayed by standard kit methods. Insulin sensitivity was evaluated using homeostatic model assessment for insulin resistance (HOMA IR). RESULTS: A significant decrease was observed in serum levels of very-long-chain C24 SM, very-long-chain C22-C24 CERs and C1P in LSG patients

after postoperation day 1 and day 30 compared to preoperation levels. At 30 days postsurgery, BMI was reduced by 11 %, fasting triglycerides were significantly decreased, and insulin sensitivity was increased compared to presurgery values. A significant positive correlation was found between HOMA-IR and serum levels of C22-C24 CERs in LSG patients. CONCLUSIONS: We conclude that very long chain CERs may mediate improved insulin sensitivity after LSG.
Keywords: Laparoscopic sleeve gastrectomy, sphingomyelin, ceramide

OP-091
OUR LAB EXPERIENCE IN ESTABLISHING ACYLCARNITINE-AMINOACID CUTOFFS IN NEWBORN SCREENING BY TANDEM MS

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OBJECTIVES: To evaluate distribution of acylcarnitines and aminoacid levels of normal newborn population in Turkey and to determine, compare cutoffs of inherited metabolic disorders. MATERIALS and METHODS: Newborn screening by tandem MS from 2016 to 2018 were reviewed retrospectively. Among total 17.076 newborns, 10.000 term newborn (>37 week) metabolic screening data was included for obtaining the normal population percentile distribution. Study group include newborns born in our hospitals located in various regions of Turkey. Heel prick blood samples were obtained and spotted on filter paper from >24 hours of age. Low birth weights (<2500 gr), newborns at NICU and with any disorder were excluded from normal population group. RESULTS: Taking into account the concentrations of our confirmed cases in some groups from 26 searched diseases we have extracted number of newborns flagged for each analyte by using P1, P99, 4SD, R4S and CDC cutoffs. Considering the Region 4 Stork validated disease range values we have analyzed our data and chose target cutoffs that laid within the recommended intervals and than editted according to the literature, estimated effect on clinical utility, recall rates, false negative and false positive rates. Our multiple SD cutoffs settled below, within, mostly above the R4S target ranges and all were below the CDC levels. Normal population 4SD values are consistent with R4S. CONCLUSIONS: It is planned to change the values of XLeu, Met (L, H), Tyr, C0, C4 and C5 when considering the valid values in order to eliminate false positive and false negative values in target intervals according to R4S.
Keywords: Tandem MS, Newborn screening, acylcarnitine, aminoacid

OP-092
DETERMINATION OF ENOS GENE POLYMORPHISM AND PLASMA ADMA CONCENTRATIONS IN PATIENTS WITH LUNG CANCER

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OBJECTIVES: Lung cancer is the most common cancer type in our worldwide. Smoking is the most important risk factor for lung cancer. Also, it is known that genetic factors take part in occurring and developing lung cancer. Many single nucleotide polymorpisms are defined for eNOS gene. Two of them are T-786C on the promoter region of gene and G894T polymorphism on exon 7 of gene. We aimed to investigate plasma ADMA levels and eNOS T-786C and G894T polymorphisms on lung cancer patients. MATERIALS and METHODS: Blood samples of 100 patients and 100 controls were taken for polymorphism analyses with PCR method based on reversed hybridization technique. Plasma ADMA levels were measured by HPLC technique. RESULTS: There was no significant difference between the polymorphisms of patients and control groups (p>0.05). Plasma ADMA levels of patients were significantly higher than those of controls (p<0.05). Plasma ADMA levels were significantly higher in the patients and control groups with CC and TT polymorphisms on eNOS T-786C and G894T gene regions, respectively. Additionally, CC polymorphisms were found higher on small cell lung cancer patients compared with non-small cell lung cancer patients. In small cell lung cancer patients, ADMA levels were found high. CONCLUSIONS: Our findings show that there was no significant difference in terms of the polymorphisms between lung cancer patients and control groups. However, plasma ADMA levels were significantly higher in patient group than controls. All these findings suggest that high plasma ADMA levels and CC genotypes are associated with small cell lung cancer.
Keywords: Nitric Oxide, Endothelial Nitric Oxide synthase, polymorphism

Introduction
Lung cancer is the most common and the highest mortality type in the world as it is in our country. Smoking is the first cause of lung cancer. Although smoking is the most important cause of lung cancer formation, it is a known fact that many other known and unknown causes leads to the formation of lung cancer. NOS catalyzes the production of nitric oxide (1). eNOS is an endothelial cell-originating NOS form. Two of the SNPs in the eNOS gene (single nucleotide polymorphism) are the G894T polymorphism in the exon 7 region with the T-786C polymorphism in the promoter region of the gene. Nitric oxide (NO); is a free radical consisting of two atoms. Besides its role in normal physiology, nitric oxide is responsible for patogenesis of diseases, such as coronary artery disease, hypertension, and various types of cancer. In 1992, Vallance et al. first described Asymmetric Dimethyl Arginine (ADMA) as the endogenous inhibitor of nitric oxide synthase in human plasma and urine (2). In this study we measured plasma ADMA levels in patients with lung cancer and investigated their association with NO and polymorphisms and examined whether the two SNPs were effective in the development of lung cancer.
Materials and Methods
Selection of Patient and Control Group: This study was approved Atatürk Univ. Faculty of Medicine ethic commite (22.05.2009/64). 100 patients with lung cancer (male: 78, female: 22) who were hospitalized at Süleyman Demirel Research Hospital, Atatürk University Medical School were included. Collection of Samples:For the detection of polymorphism in the patient and healthy control group one time, 6 mL of venous blood was collected and aliquotted with EDTA containing anticoagulant as 3 mL. Aliquot samples were stored at -80 ° C until the working day.
Methods: The eNOS T-786C and eNOS G894T polymorphisms were detected in blood samples taken from the patient and control group. A commercially available CVD strip assay kit (Viennalab Diagnostics; Vienna, Austria) was used for this.
Polymorphism Analysis, DNA Isolation
For DNA isolation, EDTA venous blood samples previously stored at -80 ° C were used. One day before the work started, the samples were transferred to the -20 ° C cabin and it was dissolved in the +4 ° C cabinet in the working day. The supernatant was obtained by treating the samples according to the kit description. The supernatant containing DNA to be used in PCR was stored at 2-8 ° C until PCR.
DNA Purity Determination and Concentration Calculation: DNA concentrations and purity ratings were determined by absorbance measurements at 260 and 280 nm wavelengths, with quartz tube as 195 µL pure water + 5 µL supernatant. The A260 / A280 ratio of 1.7-1.8 was accepted as the purity level that could be used in PCR analysis.
In Vitro Amplification (PCR): In PCR, all steps were performed on ice until the thermal cycle program was started, and DNA samples were kept frozen with PCR reagents. In Taq Dilution Buffer, a fresh diluent sample of Taq DNA Polymerase was prepared (0.2 U / µL). For each sample to be amplified, a reaction tube was placed on ice and treated according to the protocol.Analysis of Amplification Products in Agarose Gel Electrophoresis A 3% agarose gel was prepared with appropriate protocols. The ½ x TBE (Tris, Boric acid, EDTA) buffer was added to the electrophoresis tank to cover the top of the gel. DNA specimens and amplification products with 6X loading buffer were placed on wells on the gel, and the samples were run on the gel.
Hybridization:Test strips, color formers wash solution B, DNAT and conjugate solutions for the hybridization process were expected to reach room temperature. Hybridization was performed according to the standard procedure. After hybridization, standard wash and staining protocols were applied.
Evaluation of Strips: Following the staining process, wild type and / or mutation bands appeared in the striplines. Only wild type band formation is normal in the stripes; both the wild type and the formation of the mutation band heterozygote; only the occurrence of the mutation band was evaluated as a homozygote genotype.
NO Measurement: The NO amount of the samples was measured spectrophotometrically with the Griess reaction (3).
ADMA Analysis: ADMA analysis was performed with a kit based on commercially available high-pressure liquid chromatography (HPLC) method. Evaluation was made with a fluorescence detector.
Statistical analysis: Statistical analysis of data in our study was made using the IBM-SPSS 19.0 statistical program. The distributions of the variables were examined by the Kolmogorov Smirnov test. As the numerical variables were normally distributed, the difference between the two groups was assessed by using the Sample-T test. To assess the difference between 3 or more groups, the ONEWAY-ANOVA test was used. X2 (Chi-square) test was used for the analysis of the catagoric data. A statistically significant difference of P <0.05 was considered.
Results
Gene Polymorphisms:The distribution of TT, TC, CC polymorphisms in the eNOS T-786C promoter gene region and GG, GT, and TT polymorphisms in the eNOS G894T exon 7 gene region between the patients and the control group in our study are given in Table 1. No statistical difference was found in the distribution of these polymorphisms among the groups (p >0.05).
ADMA and NO levels: ADMA and NO levels measured in patients with lung cancer and in the control group are given in the Table 2. A statistically significant difference was found between the groups for both parameters (p<0.05). Based on the classification of patients with lung cancer, statistical analysis of ADMA and NO levels is given in the Table 3. ADMA levels were statistically significantly higher in SCLC compared to NSCLC. Comparison of ADMA and NO levels with eNOS gene polymorphisms. The distributions of ADMA and NO levels according to the polymorphisms in the eNOS T-786C promoter gene region are given in the Table 4. The distribution of the ADMA and NO levels according to the polymorphisms found in the eNOS G894T exon 7 gene region of the eNOS gene is given in the Table 5. Distribution of eNOS gene polymorphism is seen according to classification of patients with lung cancer below. A statistically significant difference was found between the individuals in the genotypes TT, TC and CC in terms of polymorphisms in the eNOS T-786C promoter gene

region according to classification in the analysis performed (p=0.041). However, no statistically significant difference was found in the classification of the individuals in the GG, GT and TT genotypes in terms of polymorphisms in the eNOS G894T exon 7 gene region (p=0.107).

Discussion

After the discovery of NO in 1987, much work has been done on cancer and NO relationship, and it is thought that NO may be effective both in cancer development and in the growth and development of cancer that has developed. In our study, 100 patients with lung cancer and 100 control groups were studied. There was a statistically significant difference in the levels of NO in the patient group compared to the control group. NO levels were found high in the patient group. Similarly, Obara H at all. (4) have found NO levels significantly higher in mycoplasma hyorhinis study on stomach cancer seen in infected people. Nam KT at all. (5) investigated the role of iNOS in Helicobacter pylori-associated carcinogenesis. As a result, iNOS has contributed to the formation of Helicobacter-related cancers and they found NO levels high in cancer-induced mice. We hypothesized that expression of eNOS at the gene level and plasma ADMA levels might contribute to formation of lung cancer and progression in the elucidation of these complex relationships between NO and cancer. In our study, 100 lung cancer patients and 100 control group evaluated in terms of TT, TC, CC polymorphisms in the eNOS T-786C promoter gene locus, and GG, GT, TT polymorphisms in the eNOS G894T exon 7 gene region. TT distribution in patients with lung cancer in the eNOS T-786C promoter gene region was 42%, compared with 53% in the control group. TC distribution was 47% in lung cancer, 39% in control group, and CC distribution was 11% in lung cancer and 8% in control group. There was no statistically significant difference in polymorphisms between the lung cancer patients and the control group in the eNOS T-786C promoter gene region. In the eNOS G894T exon 7 gene locus, the GG distribution was 56% in patients with lung cancer, while it was 60% in the control group. GT distribution was 34% in lung cancer, 31% in control group and 10% in TT distribution in lung cancer, while it was 9% in control group. There was no statistically significant difference in polymorphisms between eNOS G894T exon 7 gene locus and lung cancer patients. In 1992, Vallance et al. First described ADMA as an endogenous inhibitor of NO synthase in human plasma and urine (6). ADMA is an amino acid naturally found in the plasma. ADMA is a post-translational modification of arginine (6). Yoshimatsu et al. (7) have studied serum ADMA levels in stomach, breast, hematopoietic, and lung cancer cases with a total of 118 subjects (33 of these cancer cases were lung cancer) and found to be significantly higher than the control group. They have linked ADMA elevation to overexpression of PRMT1(protein arginine methyltransferase) by measuring PRMT1 in the same cancer types. However, they said there was a need for further studies to explain this expression increase and the regulation of ADMA levels in cancers. Szuba et al. (8) investigated plasma ADMA levels in hematological malignancies of different types and found to be significantly higher than the control group. Phebe L at all study showed a significant inverse correlation between ADMA and NO. This study emphasizes the correlation between ADMA and NO (9). Karthik Reddy at all have studied that the elevated DDAH1(Dimethylarginine dimethylaminohydrolase-1) results in enhanced NO production and its downstream VEGF and HIF1 expression due to reduced tumor ADMA (10). Andrzej Szuba at al. report that a substantial increase of plasma ADMA in the population of patients with different hematological malignancies.They say that ıncreased protein turnover, oxidative stress and impaired dimethylarginine dimethylaminohydrolase activity,which degraded ADMA, occurring in hematological malignancies may lead to increased dimethylarginines production (11). ADMA in hematological patients could be a result of increased degradation of intracellular proteins (12). Zheng at al. reveals that the plasma ADMA level is elevated in colon cancer patients, which can attenuate serum starvation-induced apoptosis in LoVo cells.(13). All these studies have shown to increase ADMA levels in many different tissue-derived cancer cases. In our study, parallel to these studies, we found that plasma ADMA levels were statistically higher in patients with lung cancer than control group. We determined plasma ADMA levels by HPLC method. We also investigated the relationship between eNOS T-786C and G894T polymorphisms in 100 lung cancer patients and 100 control groups and plasma ADMA and NO levels of both groups in our study. As a result, we could not find any statistically significant difference between the polymorphisms and NO levels in both groups. However, we found that the ADMA levels were significantly higher in patients with CC and TT polymorphism, in terms of gene regions above. This table suggests that eNOS gene expression in individuals in the CC genotype is affected in a way that increases NO levels and in this cases eNOS may increases plasma ADMA levels, the endogenous inhibitor of eNOS. In terms of eNOS T-786C and G894T polymorphisms in these data, the individuals with CC and TT genotypes, respectively, suggest that plasma ADMA levels are highly dependent on plasma NO levels. Hovewer, they may dependent on this level for other reasons. In addition, there was no statistically significant difference in our study between NSCLC and SCLC with respect to NO levels whereas ADMA levels in SCLC were statistically higher than those of NSCLC. There was no statistical difference in G894T polymorphisms in both groups when evaluating SCLC and NSCLC for polymorphisms. However, there was a statistically significant difference when evaluated for T-786C polymorphism. CC genotype was higher in SCLC than in NSCLC. Our study suggest that the CC genotype is more likely to be observed in SCLC. Therefore, If individuals carrying this genotype get lung cancer they may be more likely to have SCLC. In our view, the pathophysiological mechanism underlying this and its relation to ADMA should be explored further in a wider range of patient groups. In our study, there was no statistically significant difference between the age of the patient group and the control group when the patient and control group were examined for their demographic characteristics. There was a statistically significant difference in favor of the patient group in terms of smoking. It was a result that we expected to have a high drinking level in the patient group of the cigarette, which was obviously accused of lung cancer etiology.

Conclusion and recommendations

In our study, we investigated TT, TC, CC polymorphisms in the eNOS T-786C promoter gene region and GG, GT, TT polymorphisms in eNOS G894T exon 7 gene locus in 100 lung cancer patients and 100 control groups. There was no statistically significant difference between the lung cancer patients and the control group in terms of these polymorphisms. Plasma ADMA and NO levels in lung cancer patients were statistically higher than control group. Plasma ADMA levels of patients in the CC and TT genotypes and patients in the control group were significantly higher than the other polymorphic groups in terms of eNOS T-786C and G894T polymorphisms, respectively. In addition, there was no statistically significant difference in our study compared to in NSCLC NO levels and in SCLC NO levels, whereas ADMA levels in SCLC were statistically significantly higher than in NSCLC. When assessed for polymorphisms, there was no statistical difference in G894T polymorphism in both groups. However, there was a statistically significant difference when evaluated for T-786C polymorphism. The CC genotype was higher in SCLC than in NSCLC. As a result, it is clear that more genetic studies are needed in lung cancer disease, which is complicated by the interaction of genetic and environmental factors. In patients with lung cancer, eNOS T-786C and G894T polymorphisms and plasma ADMA levels may be added to other parameters in much wider patient and control groups to clarify these dark associations that have been studied and can not be explored. Thus, in these studies, significant contributions can be made to both the etiology and the development of lung cancer.

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Table 1: Distribution of eNOS T-786C and G894T polymorphisms in the patient and control group.

	Lung cancer patients N=100	Healthy control group N=100	P value
eNOS T-786C			
TT	42 (%42)	53 (%53)	
TC	47 (%47)	39 (%39)	0.288
CC	11(%11)	8 (%8)	
Allel Frekansı			
T allel	0.655	0.725	
C allel	0.345	0.275	
eNOS G894T			
GG	56 (%56)	60(%60)	
GT	34(%34)	31(%31)	0.848
TT	10 (%10)	9 (%9)	
Allele Frequency			
G allel	0.73	0.755	
T allel	0.27	0.245	

Table 2: ADMA and NO levels in patients with lung cancer and control group.

	Lung cancer patients N=100 (X±SD)	Healthy control group N=100 (X±SD)	P value
ADMA (µmol/L)	1.72±1.27	0.94±0.45	0.000
NO (µmol/L)	30.95±18.20	24.03±12.61	0.011

Table 3: Distribution of ADMA and NO levels according to histopathological classification.

	Classification		
	KHAK (N=24) (X±SD)	KHDAK (N=76) (X±SD)	p value
ADMA (µmo	2.51±1.68	1.47±1.01	0.01
NO (µmol/L)	30.65±19.25	31.04±17.99	0.93

Table 4: ADMA and NO levels in groups according to eNOS T-786C polymorphisms

eNOS T-786C	Akciğer Kanserli Hastalar N=100			Sağlıklı Kontrol N=100			Toplam N=200	
	N	NO (µmol/L)	ADMA (µmol/L)	N	NO (µmol/L)	ADMA (µmol/L)	N	NO (µmol/L
TT	42	31.45±17.22	1.51±1.18	53	24.35±12.98	0.84±0.35	95	27.49±1
TC	47	32.76±19.73	1.45±1.05	39	23.2±12.41	0.84±0.35	86	28.42±1
CC	11	21.29±12.44	3.62±0.89*	8	25.96±9.09	2.06±0.37*	19	23.26±1

*: The ADMA levels of carriers with CC alleles were statistically significantly higher than the other two types ($p<0.05$)

Table 5: ADMA and NO levels in groups according to eNOS G894T polymorphisms

ung cancer atients =100			Healthy control N=100			Total N=200	
J	NO (µmol/L)	ADMA (µmol/L)	N	NO (µmol/L)	ADMA (µmol/L)	N	NO (µmol/L)
6	31.01±17.4	1.44±0.92	60	23.55±13.6	0.87±0.32	116	27.15±15.93
4	31.18±18.82	1.78±1.52	31	24.02±11.06	0.85±0.38	65	27.77±15.9
0	29.77±22.02	3.06±1.32*	9	27.23±8.29	1.69±0.76*	19	28.57±16.69

*: The ADMA levels of the TT allele carriers were statistically significantly higher than the other two types ($p<0.05$)

Table 6: Distribution of eNOS T-786C and eNOS G894T polymorphisms according to histopathological classification in the patient group

	Lung cancer patients	
	KHAK	KHDAK
eNOS T-786C		
TT	9 (%37.5)	33(%43.4)
TC	9(%37.5)	38(%50)
CC	6(%25)	5(%6.6)
Allel Frequency		
T allele	0.562	0.684
C allele	0.437	0.315
eNOS G894T		
GG	13(%54.2)	43(%56.6)
GT	6(%25)	28(%36.8)
TT	5(%20.8)	5(%6.6)
Allele Frequency		
G allele	0.666	0.75
T allele	0.333	0.25

OP-093

RELATIONSHIP BETWEEN SERUM NO AND ADMA LEVELS WITH ACUTE EXACERBATION OF COPD

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OBJECTIVES: Asymmetric dimethylarginine (ADMA), a metabolite of protein turnover throughout the body, is considered as a signifcant factor in nitric oxide (NO) homeostasis that may interfere with several processes related to the evolution of infammatory airway diseases. The aim of the study was to compare the serum levels of ADMA and NO between patients with stable chronic obstructive pulmonary disease (COPD) and those with acute exacerbation of COPD. The serum levels of ADMA and NO in patients with acute exacerbation of COPD also establish whether their levels vary in relation to forced expiratory volume in 1s (FEV1). MATERIALS and METHODS: This study involved 55 patients with exacerbated COPD, 50 patients with stable COPD and 30 healthy subjects. Serum ADMA and NO levels were measured using ELISA and the colorimetric method, respectively. RESULTS: Serum ADMA levels were significantly higher, however, NO levels were lower in patients with COPD compared with controls. Serum ADMA levels in patients with exacerbated COPD were significantly higher than in those with stable COPD; NO levels were decreased compliant with progression of COPD stages. ADMA levels were inversely correlated with NO levels. Serum ADMA levels were significantly negative correlated with FEV1, while NO were significantly positive correlated with FEV1. CONCLUSIONS: Our study indicates that circulating ADMA levels as the marker of nitrosative stress increase during exacerbated COPD. The measurement of serum ADMA and NO levels may be useful in the evaluation of exacerbated COPD. ADMA may be a novel therapeutic target for the treatment of COPD.
Keywords: Acute exacerbation, Asymmetric dimethylarginine, Chronic obstructive pulmonary disease, Nitric oxide

OP-094

INCREASED SERUM ASYMMETRIC DIMETHYLARGININE LEVELS IN WORKERS WITH LEAD EXPOSURE

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OBJECTIVES: A growing body of epidemiological research associates lead exposure with adverse cardiovascular health. Our aim was to determine the relation between serum asymmetric dimethyl arginine levels and lead-exposure. MATERIALS and METHODS: Serum ADMA was analyzed with the Shimadzu LC-20AD system coupled with Applied Biosystems MDS SCIEX (USA) API 3200 mass spectrometry in electrospray ionization (ESI) positive mode by Phenomenex Luna C18 column with a modified method. Briefly, 100 microliters (µL) of internal Standard (d7-ADMA) in methanol were added to 200 µL of serum and centrifuged at 13.000 rpm for 10 minutes to remove the precipitated proteins. The supernatant was collected and dried under a nitrogen gas flow at 600C. The derivatization step was performed dissolving the dried extract in 200 µL of a freshly prepared butanol solution containing 5% (v/v) acetyl chloride and kept at 60oC for 20 minutes. The solvent was removed by evaporation under nitrogen flow at 60oC. The derivatized samples were dissolved in 100 µL of water–methanol (90:10, v/v) containing 0.1% (v/v) formic acid and 40 µL was injected into the ultra pressure liquid chromatography (UPLC) analytical column. RESULTS: Serum asymmetric dimethylarginine (ADMA) (0.22±0.09 µmol/L vs 0.17±0.03 µmol/L, $p<0.001$) were higher in lead-exposed group compared to controls. There was a statistically positive significant correlation between serum ADMA and whole blood lead levels ($r=0.326$, $p<0.001$). CONCLUSIONS: ADMA has been suggested as a parameter for endothelial dysfunction and coronary heart disease.Lead toxicity might be a risk factor by inhibition of nitric oxide synthase ezyme.
Keywords: Asymmetric dimethylarginine, Cardiotoxicity, Battery Workers, Lead, Exposure

OP-095
DETECTION OF B-THALASSEMIA CD44 MUTATION BY USING PIEZOELECTRIC BIOSENSOR FOR NON-INVASIVE DIAGNOSIS

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OBJECTIVES: β-Thalassemia is one of the most monogenic autosomal recessive disorder characterized by defective production of the hemoglobins β-chain. Definition of the β-globin genotype is necessary for genetic counselling in the carriers, and for predicting prognosis and management options in the patients with thalassemia. DNA-based prenatal diagnosis of β-thalassemias routinely relies on polymerase chain reaction (PCR) and gel electrophoresis. The aim of this study is to develop a new procedure, a DNA-based piezoelectric biosensor, for the detection of β-thalassemia CD-44 mutation fetus' cell free DNA from maternal blood. MATERIALS and METHODS: Cell-free fetal DNA taken from maternal whole blood. Bioactive layer was constituted by binding 2-HidroxymetacrilateMeta criloamidoscystein(HEMA-MAC) nanoploymers on the electrode's surface. Single oligonucleotide probes specific for CD-44 mutation of β-thalassemia were attached to the nanopolymer. The measurements were executed by piezoelectric resonance frequency which is caused by binding of the cell free fetal DNA in media with single oligonucleotide probe on the electrode surface. The results were confirmed by the conventional molecular method as ARMS. RESULTS: The piezoelectric resonance frequencies obtained by hybridization of the cell free fetal DNA on bioactive layer were found 246±21, 293±16 ve 384±18 Hz for the samples of normal β-globin, heterozygote, and homozygote of CD-44 mutation, respectively. CONCLUSIONS: The developed biosensor serves as a specific result to Cd-44 mutation. It could accurately discriminate between normal and CD-44 mutation samples.Becauseoflowcosts,fastresults,specificityandhighdetection/information effectiveness as compared with conventional prenatal diagnosis methods,we can be offered this techique as an alternative to conventional molecular methods. Keywords: Genosensor, Non-invasive, Prenatal diagnosis, Cd-44

OP-096
A NEW ENZYME BIOSENSOR DESIGN FOR RAPID SCREENING OF CONGENITAL ADRENAL HYPERPLASIA IN NEWBORN

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OBJECTIVES: Congenital Adrenal Hyperplasia (CAH) is a family of autosomal recessive disorders characterized by deficiency in one or another of the enzymes of cortisol biosynthesis. The most prevalent form of the disorder is 21-hydroxylase (21OH) deficiency which is the most frequent inborn metabolism error and 17-Alpha-OHP is secreted in abundant excess. Measurement of 17-Alpha-OHP is therefore valuable in the initial diagnosis of CAH. Newborn screening procedures for CAH are still suboptimal because of low specificity, particularly in premature infants. The aim of this study was to design a biosensor for detection 17-Alpha-OHP; a new method for CAH screening in newborn. MATERIALS and METHODS: The electrochemical measurements were performed using a gold electrode coated with Au-Poly HemaMac, combined with the reference Ag/AgCl electrode and the auxiliary Au/Pd (98/2%) electrode. UV immobilization performed with 17-Alpha-OHP-horseradish peroxidase on the modified gold electrode surface with anilin (20µL enzyme and 20µL anilin). RESULTS: Optimization studies determine the most suitable working conditions for using the biosensor. Polymerization time was 2h, the enzyme concentration used 0.5mg/mL, temperature was 35°C, pH was 6.5 with phosphate buffer. After the characterization studies of the biosensor the detection limit was 0.015ng/mL-7.5ng/mL, repeatability was 2.98±0.04. CONCLUSIONS: The demonstrated method for 17-Alpha-OHP detection in newborn is useful and can be carry out rapidly in clinical diagnosis. Using automated biosensors are reproducible, quick and results can be generated within a few minutes compared to the traditional tests in use. Keywords: Biosensor, enzyme, 17- Alpha-OHP, CAH

OP-097
DEVELOPMENT OF MOLECULARLY IMPRINTED POLYMER BASED BIOENSOR SYSTEM FOR DETERMINATION OF PREDNISOLON

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OBJECTIVES: Prednisolone is one of the most widely used synthetic corticosteroids in the symptomatic treatment of many diseases. Due to its potent antiinflammatory activity, prednisolone is present in varying amounts in many products. It is also in the class of materials prohibited by WADA because it increases the performance of athletes from unnatural ways. Prednisolone can be measured by HPLC,GC-MS, LC MS MS. However, these techniques require pre-treatment such as SPE,LLE, derivatization, and expensive equipment. The aim of this work is to develop a molecularly imprinted polymer (MIP) based biosensor system for fast, inexpensive analysis of prednisolone. MATERIALS and METHODS: Prednisolon-MIP sensors were prepared by electropolymerization pyrolle in the presence of a prednisolone molecule on the gold nanoparticle-coated graphite electrode surface. Biosensor responses were monitoredbyFerri/FerrosolutionwithDifferentialPulsemethod.Templatemolecule/monomer ratio, incubation and extraction duration optimizations were performed. RESULTS: The optimum incubation time of the developed biosensor was found to be 7 minutes and optimum extraction time was found to be 5 minutes. The linear detection range of the Prednisolon MIP sensor is 1-75 µM, and the detection limit is 0.35 µM. the mean, standard deviation and %variation coefficient values were found as 48.69 µM, ± 1.06 and 2.189% respectively. MIP sensors have been used to test substrate specificity, interference effect, and tank stability. CONCLUSIONS: In addition, the developed MIP sensors were tested for prednisolone in urine and serum samples and compared with LCMSMS method. As a result, a fast, inexpensive, reliable biosensor system for the determination of prednisolone has been developed. Keywords: Prednisolone, MIP, biosensor

OP-098
SYNTHESIS AND APPLICATION OF P (HEMA-MAGA) -CTS NANOPOLIMMER FOR UREASE IMMOBILIZATION

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OBJECTIVES: Urease (urea amidohydrolase, E.C.3.5.1.5) is an enzyme that catalyzes the hydrolysis of urine to form ammonium and carbon dioxide. Most industrial applications of enzymes are carried out using immobilized systems and the immobilization process facilitates the recovery and reuse of the enzyme. In this work, chitosan (CTS), 2-hydroxyethyl methacrylate (HEMA) and N-methacryloyl- (L) -glutamic acid (MAGA) it is aimed to synthesize environmentally friendly nanoscale polymer with high mechanical stability by suspension polymerization and to use it in urease immobilization studies. MATERIALS and METHODS: The synthesized p (HEMA-MAGA) -CTS was characterized by Fourier transform infrared spectroscopy (FTIR), scanning electron microscopy (SEM) and particle size analysis tests. The parameters affecting immobilization such as sorbent amount, initial urease concentration, duration, ionic strength are optimized in order to optimize the prepared urease immobilization conditions with sorbent. Measurements were made at 280 nm using UV spectroscopy. RESULTS: The initial urease concentration was studied at an enzyme concentration of 0.1-2 mg / ml and was determined as the initial concentration of 0.5 mg / ml. In order to determine the optimum immobilization time, the period of immobilization was 120 min. To determine the amount of sorbent, sorbent was used at 250-2000 µl and sorbent amount was chosen as 500 µl. For temperature optimization, it was operated at 5-45 ° C and set at 25 ° C. As the ionic violence increased, amount of adsorption decreased. CONCLUSIONS: The synthesized nanostructured suspension polymer was used for urease immobilization. The maximum adsorption capacity at optimum conditions was found to be 2.06 mg / mg. Keywords: Urease, Enzyme Immobilization, Nanopolymer

OP-099
DESIGN OF POLYANILINE BASED UREA BIOSENSOR

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OBJECTIVES: Urea is a side effect that can be observed in renal diseases and is a good indicator of the level of uremic toxins. The purpose of this study is to design an electrochemical biosensor that uses polyaniline polymer to provide urea measurement at lower cost and in a shorter time. MATERIALS and METHODS: After the Au work was attached to the electrode surface as a polyaniline-gelatin polymer monolayer, the bioactive layer was prepared by binding urease-glutamate dehydrogenase enzymes to form a specific reaction with urea on the polymer. The measurements were made based on the fact that the NAD+ formed at the end of the reaction was directly proportional to the urea concentration. The working range, appropriate buffer-pH and polyaniline concentrations were investigated. The results were confirmed by spectrophotometric method. RESULTS: In the measurements made with polyaniline /urease / glutamate dehydrogenase coated bioactive layer, the working range was determined as 0.0-1.4 V and the scan rate was 0.02V / s. Suitable ambient conditions for the study are; Tris buffer pH 7.6 and 20 mmol/l polyaniline. CONCLUSIONS: It has been determined that the biosensor we have developed responds to the urine specific response. When we looked at the result of correlation analysis, we found that there was a strong and significant correlation between both methods when r value was 0,999 and p value was p <0,01. Low cost and quick results compared to traditional urea measurement methods show that this technique can be used as an alternative. Keywords: Glutamate dehydrogenase, polyaniline, urease, urea biosensor

OP-100
DEVELOPMENT OF A REUSABLE MOLECULARLY IMPRINTED IMPEDIMETRIC SENSOR FOR CORTISOL DETECTION IN SALIVA

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OBJECTIVES: Molecularly imprinted polymers (MIP) are artificial receptors produced by imprinting unnatural polymers with a target molecule. In this study, we developed an impedimetric sensor modified by molecularly imprinted copolymers (acrylamide-acrylamidophenyl boronic acid) for cortisol detection in saliva. MATERIALS and METHODS: This sensor was developed by the modification of carbon screen printed electrode (CSPE) by acrylamide and acrylamidophenyl boronic acid(AAPBA) monomers to form cortisol selective polymers. This polymer layer was formed on the single walled carbon nanotube (SWCNT) modified CSPE surface by using cortisol:acrylamide:AAPBA(2:4:1) ratio. Ammonium persulfate was used to initiate polymerization. The sensor surface was investigated by electrochemical impedance spectroscopy (EIS), Scanning Electron Microscopy (SEM) and X-Ray Photoelectron Spectroscopy (XPS). The performance of the sensor was evaluated by tandem mass spectrometer (MS/MS). Salivary samples were obtained from healthy volunteers, both genders, between the ages 25-32. Time for collection of samples was at least 30 minutes after wake-up. RESULTS: Performances of the electrode was as follows; calibration curve was calculated between 0.8 pM to 10 µM, R2=98.92±0.52, LOD and LOQ were 0.22 pM and 0.76 pM, respectively. The sensor showed good correlation with MS/MS in real samples. CONCLUSIONS: This study revealed the achievement of a resuable, low cost, easy to use and fast cortisol detection sensor. This sensor could therefore be developed to use in point-of-care testing of the stress hormone cortisol.
Keywords: sensor, biosensor, cortisol, impedance, molecular imprinting

OP-101
DESIGN OF A NEW BIOSENSOR FOR THE DETERMINATION OF FERROUS IRON IN BLOOD

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OBJECTIVES: Iron is an element that is necessary for life but can damage the organism if it is present in excess. Metals such as iron are needed for physiological functions of the body. Iron performs many important functions in the body. Iron deficiency is the most common nutritional deficiency and the leading cause of anemia in the world. In this study, we aimed to design a biosensor for the quantitative determination of Fe+2 in a short time and at an affordable cost. MATERIALS and METHODS: The Fenton reaction is based on the reaction of Fe+2 ion with hydrogen peroxide. The bioactive layer was prepared by immobilizing hydrogen peroxidase enzymes on the gold electrode with bovin serum albümin (BSA), gelatin, glutaraldehyde with the help of UV light. This study was carried out with using 10 µl of enzyme from stocks at 0.5, 1 and 2 mg / ml concentrations prepared from horseradish peroxidase. The cyclic voltamogram is used to determine the current range at which the response can be measured. RESULTS: The response current in the range of 0.2 and 1.4 V was realized in the cyclic voltammogram where the scanning speed was 0.06 V/S. The rate of the enzymatic reaction was initially increased linearly by increasing the substrate concentration in an environment where all parameters were constant, and the reaction rate decreased after a certain substrate concentration. CONCLUSIONS: In this study, the best measurement was obtained with gold electrode immobilized with an enzyme concentration of 2 mg / ml was used. Our work continues.
Keywords: biosensor, hydrogen perxidase, optimization

Introduction
Iron is an element that is necessary for life but can damage the organism if it is present in excess [1-2]. Metals such as iron are needed for physiological functions of the body [3]. Iron performs many important functions in the body [4]. It is primarily involved in the transfer of oxygen from the lungs to tissues [5]. However, iron also plays a role in metabolism as a component of some proteins and enzymes [6]. Iron deficiency is the most common nutritional deficiency and the leading cause of anemia in the World [7]. In this study, we aimed to design a biosensor for the quantitative determination of Fe+2 in a short time and at an affordable cost.
Material and Methods
Experimental: Chemicals; All chemicals used in biosensor establishement were purchased from Sigma Chemical Co., USA. All solutions were prepared freshly just before experiment.
Apparatus: PalmSens potentiostat (Holland), and corundum ceramic based screen printed gold electrode (tickness 1.0 mm, BVT Technologies, CZ) combined with the reference Ag/AgCl electrode, and the auxiliary AuPd (98/2%) electrode were used to perform the electrochmeical measurements.
In the experiments, automatic pipets (Gilson, France), a yellow line magnetic stirrer (Germany), and a thermostat (Nuve, Turkey) were used. Ultra-pure water in the preparation of solutions was obtained water purification system (Mili-Q and Milipore RIOS-DI 3 UV, USA).
Preparation of the biosensor: Prior to coating with BSA/Jelatin, the surface of Au ceramic electrode was polished with alumina slurries on microfiber cloth to obtain a mirror surface. The polished electrode was rinsed with double distilled water. In order to remove undisered absorbable particules, the electrode was sonicated first in pure ethanol and later in double distilled water for 10 minutes. In the next step, the electrochemical cleaning of electrode was accomplished by five successive cyclic voltammetric sweeps between −1.0 and +1.0 V in 0.1 M HNO3 solution.
The bioactive layer was prepared by immobilizing hydrogen peroxidase enzymes on the gold electrode with bovin serum albumin (BSA), gelatin, glutaraldehyde with the help of UV light.
All the measurements were executed in a thermostatic reaction cells, contained varying amounts of hydrogen peroxide concentration in the reaction medium (Sodium acetat buffer, 50 mM, pH 6.0 and 1g/L H2O2, at 40 °C.
Principle of measurement is based on the oxidation- reduction reactions by the peroxidase enzymes in reduced form, of which convert H2O2 to OH- and than the oxidized enzyme rejenerated by FeSO4 in the media [8]. Finally, the arrised electrochemical potential difference during these reactions was measured by voltammetry.
Results and Discussion
Electrochemical characterisation of the biosensor: After screening for a wide potantial range, cyclic voltammograms were found out at a potential range between 0.2 and 1.4 V (Fig 1) for measuring H2O2 concentration. Cyclic voltammograms showed that immobilization of hydrogen peroxidase enzyme brought about prominent oxidation and reduction peaks.

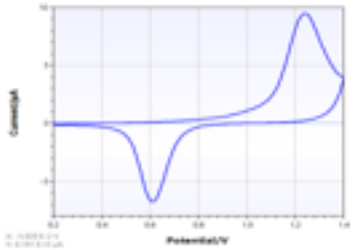

Figure 1. The cyclic voltammograms of the biosensor at different stages in a potential range of (+0.2)-(+1.4) V at sodium acetat buffer solution at a scan rate of 0.6 Vs−1. According to the figure 1 redox peak appeared in the cyclic voltammogram of the Au electrode.

Effect of the enzyme concentration
The amount of enzyme activity used in the biosensor preparation is the key factors for biosensor responses and sensitivity [9]. To determine the effect of the enzyme activity on the biosensor response, the different amount of enzyme concentrations (0.05, 0.1, and 0.2 mg/mL) were seperatly used for the biosensor preparation. According to the results, when the bioactive layer of biosensor contained the concentrations of hydrogen peroxidase of 0.1 mg/mL, the most meaningfull curve was obtained (Fig 2.).

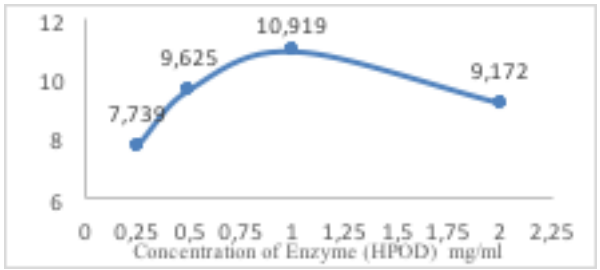

Figure 2. The effect of hydrogen peroxidase activity on the biosensor response (sodium acetat buffer, pH 6.0, 50 mM, T, 40 °C). 0.25 mg/ml 0.05 mg/ml, 1 mg/ml, 2 mg/ml of hydrogen peroxidase.
Effect of the cross-linker concentration: To determine the effect of cross-linker concentration on the biosensor, the concentrations of glutaraldehyde of 1,5%, 2,5%, 3% and 3,5% were used. The optimum value was obtained at 3%. (Fig 3)

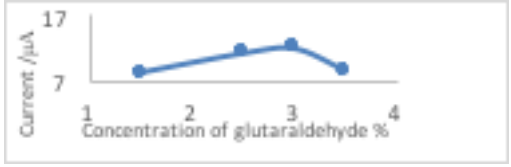

Figure 3. The effect of the cross-linker concentration activity on the biosensor response (sodium acetat buffer, pH 6.0, 50 mM, T, 40 °C). 0.25 mg/mL 0.05 mg/mL, 1 mg/mL, 2 mg/mL of hydrogen peroxidase.

Effect of pH on the biosensor response: Biosensors based on an enzyme depends on a suitable buffer system and pH medium for obtaining the best responses. To detect the effect of the pH value on the biosensor response, different buffer systems were investigated [10]. For this aim, acetate (50 mM, pH 4.0-5.0-6.0), phosphate (50 mM, pH 7.0), and Glycine/NaOH (50 mM, 8.0) buffers were used in the experiments. The optimum pH value was 6.0 due to 100% activity rate. Below and above pH 6.0 causes a decreases in the biosensor response. Effect of temperature: For the determination of temperature effect on the biosensor response, the assay was performed by different temperature (30-45 °C). Optimum working temperature of the biosensors was detected as 40 °C. According to Fig. 4, the biosensor response directly increased with temperature until 40 °C, but further increase in temperature caused a decrease on the biosensor response.

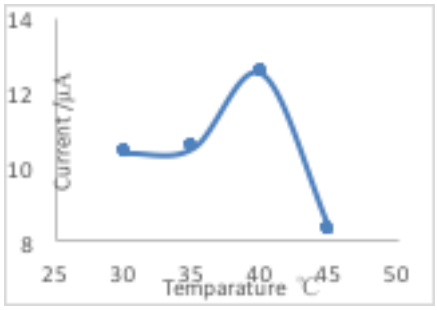

Figure 4. Calibration curve of temperature (Sodyum Acetat buffer, pH 6.0, 50 mM).

Effect of scan rate on the biosensor response: In order to determine the effect of scan rate on the biosensor responses, measurements were carried out at 0.04, 0.05, and 0.06 V s−1. Cyclic voltammograms obtained from the experiments showed that 0.05 V s−1 was the optimum scan rate for the detection of hydrogen peroxide (considering the fastest response and maximum reduction in current).

Figure 5. Calibration curve of the electrode scan rate (Sodium acetat buffer, pH 6.0; 50 mM, T, 40 °C).

Measurement of different ferrous iron amount: 25, 50, 75, and 100 µg/dl of ferrous iron (Fe+2) concentration were prepared using ıron sulphate and measurements were taken under optimized conditions. When the iron concentration increases,

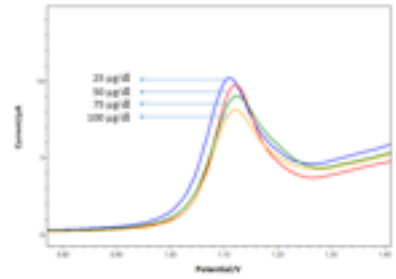

Figure 6. Measurement of different ferrous iron amount (Sodium acetat buffer, pH 6.0; 50 mM, T, 40 °C).

Conclusions

As a result of this work, determination of Fe+2 via hydrogen peroxide by using biosensor method is a new approach. Determination of Fe+2 with this method is also possible at low concentrations. According to literature the enzymatic biosensor studies have known to be very sensitive, specific, simple and less time-consuming methods [11-12].

Consequently, we can be suggested that development of the method would be an original and useful procedure for hydrogen peroxide determination.

Therefore next step towards making the sensor for in vivo studies and more portable involves further miniaturization allowing in situ monitoring of signals.

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OP-102

IN SILICO ANALYSIS OF BETA-SECRETASE GENE (BACE1) WHICH PLAYS A ROLE IN ALZHEIMER'S DISEASE

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OBJECTIVES: The BACE1 gene encodes β-secretase that plays a role in the formation of amyloid beta plaques in the brain that are leading to the Alzheimer's disease. The aim of this study was to determine the single nucleotide polymorphisms (SNPs) in the BACE1 gene via internet based software tools and to predict the SNPs have damaging effects on protein structure and stabilization. MATERIALS and METHODS: The NCBI dbSNP database was used to access missense SNPs in BACE1 gene. Functional effects of SNPs were determined by SIFT and PolyPhen-2 software tools. The I-Mutant 2.0 software tool was used to determine the effect of selected SNPs on protein stabilization. Furthermore, in order to determine the effects of these SNPs on the three-dimensional structure of the protein, modeling was carried out using the Project HOPE software tool. RESULTS: 271 SNPs were determined as missense in the BACE1 gene from NCBI dbSNP database. According to the both SIFT and PolyPhen-2 software tools, a total of 10 SNPs determined to have damaging effects. I-Mutant 2.0 results showed that 9 SNPs decreased protein stabilization while 1 SNP increased. Three-dimensional modeling of protein was performed with Project HOPE software tool and wild and mutant type amino acids were evaluated in terms of size, charge, and hydrophobicity. CONCLUSIONS: In our study, it has been determined that 10 SNPs located in the BACE1 gene may have damaging effects on the structure and stabilization of beta-secretase protein by means of Internet-based software tools. These results are suggested to provide data for further experimental analysis.

Keywords: BACE1, Alzheimer's Disease, single nucleotide polymorphism (SNP), in silico

OP-103

DEVELOPMENT OF FUNCTIONALISED QCM BASED BIOSENSORS TO DETECT BREAST CANCER CELLS

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OBJECTIVES: Transferrin, notch and Her2/neu receptors of breast cancer cells increase parallel to their metastatic potential. Quartz crystal microbalance (QCM)

detects molecules by converting mass changes into an electrical signal. Here, receptor-specific ligands and/or antibodies were used to create a QCM-based system to identify a small number of cells via their receptors in a specific and sensitive manner. MATERIALS and METHODS: Nanoparticles prepared using HEMA and characterized by FTIR and zeta sizer and adsorbed onto the chip surface to expand surface area. The QCM chip was functionalized by binding Her2/Neu and notch monoclonal antibodies and transferrin. MDA-MB-231, MCF7 and as negative control, mouse fibroblast cells were passed through prepared surface and system activity was investigated and binding kinetics were determined. RESULTS: The average size of the nanoparticles were 40 nm. The contact angle has decreased considerably due to -OH groups in HEMA. QCM sensor measured 96.7% linearity at the given the range of 500-125,000 cells/mL After competing adsorption experiments and the sensogram signal values were compared. It was found that all there receptors were detected on MDA MB 231 cells specifically with high sensitivity by this QCM based biosensor. CONCLUSIONS: In this study, we analyzed the efficacy of functionalized QCM biosensors with three different receptor-specific antibodies and ligands, and found that transferrin, notch and Her2/neu receptor targeted QCM based sensor may offer a highly specific, rapid and sensitive method for detecting cancer cells via their overexpressed receptors. Keywords: Breast cancer, transferrin, notch, HER2/neu, biosensors, quartz cystal microbalance

OP-104
NAD+ DEPENDENT FORMATE DEHYDROGENASE PRODUCTION AND ENHANCEMENT OF ACTIVITY VIA PROTEIN ENGINEERING

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OBJECTIVES: Enzymes have a broad ranges of utility in industries. Furthermore, biochemical kits used for diagnostic, therapeutic purposes and research fields depend on enzymes for operating for accurately. Formate is an essential endogenous single-carbon metabolite. Formate levels were shown to increase in human serum, urine and exhaled breathe condensate due to metabolism of different substances in cases of especially methanol intoxication, vitamins B deficiencies, asthma and various psychiatric disorders. MATERIALS and METHODS: In our study, Candida boidinii gene-derived FDH enzyme was cloned by recombinant DNA technology and transferred to E. coli BL21 cells. The His-Trap column was used for purification of the enzyme. Enzyme activity measurements were performed spectrophotometrically at 340 nm. Single and combined mutations were made at positions Gln287-His311-Cys262-Lys328-Phe285-Val120-Asn187 using protein modeling and simulation (pymol, Gaussian09) programme in CboFDH enzyme. Optimum temperature, pH and comparative kinetic activity determinations were made for Wt and Mutant strains. RESULTS: The optimum pH for the Wt FDH enzyme and the mutant FDH obtained after purification was found to be 7.4. Thermal stability studies showed that the mutant FDH activity was stable at 70 ° C. The Km format values were 5.6 ± 0.4 mM for WtFDH and the values were between 4.3 ± 0.2471 and 5.1 ± 0.326 for MutFDHs. CONCLUSIONS: In particular, the single and combined mutations of the mutants FDHP285T and FHDV120S showed significantly higher activity than wtFDH in the measurement of low level format levels in serum. The robust properties of the enzyme make it a suitable candidate for industrial and clinical diagnostic applications. Keywords: Candida boidinii, formate, formate dehydrogenase, protein engineering, Recombinant DNA Technology

OP-106
DIABETES MELLITUS RELATIONSHIP WITH VITAMIN D AND VITAMIN B12 LEVELS: A RETROSPECTIVE ANALYSIS

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OBJECTIVES: To compare the levels of vitamin D and vitamin B12 in patients with type 2 diabetes mellitus (DM) versus those without diabetes mellitus. MATERIALS and METHODS: Serum hemoglobin A1c (HbA1c), 25-hydroxy vitamin D, vitamin B12, calcium and phosphate levels were studied in 1932 patients (1306 women and 626 men) who applied to Adult Endocrinology Unit of Dicle University Medical Faculty Hospital between January 2016 and January 2018 the patients were taken to work and the results were retrospectively reviewed. According to HbA1c levels, two groups were categorized as non-diabetic and diabetic, ≤ 6.5% and> 6.5%. The results were evaluated according to age, gender and seasonal variables as well as biochemical parameters. RESULTS: In the study group, diabetic patients were 41.04% (female / male: 515/278) when as non diabetic and diabetic according to HbA1c values. Non diabetic patients were 58.96% (Female / Male: 791/348). Diabetic patients (HbA1c level> 6.5%) with D vitamin-B12 and D vitamin-calcium were statistically significant (p <0.001) (p <0.001); A negative correlation between vitamin D and phosphorus and vitamin D HbA1c was statistically significant (p <0.01) (p <0.01). CONCLUSIONS: it was seen that in the group of HbA1c> 6,5%,vitamin D value was lower in males (p = 0,002) than in females (p = 0,093) and was meaningful in males.These findings suggest that vitamin D deficiency in patients with Type 2 diabetes is important in examining vitamin D and B12 levels in such chronic diseases. The statistical significance of vitamin D in male diabetic patients suggests that this may be due to hormonal differences. Keywords: B12 vitamin,type 2 diabetes,Vitamin D

OP-107
ASSESSMENT OF CARDIAC DYSAUTONOMIA AND VITAMIN D LEVELS IN MULTIPLE SCLEROSIS PATIENTS

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OBJECTIVES: Vitamin D deficiency has been described as enviromental risk factor for Multiple Sclerosis (MS). Vitamin D is a neuroactive hormone that modulates the autonomic balance. It is suggested that autonomic nervous system is related to vitamin D regulation. The aim of this study was investigate the serum levels of vitamin D, Vitamin D Binding protein (VDBP) and Vitamin D Receptor (VDR), as well as the evaluation of cardiac authonomic dysfunction in MS patients. MATERIALS and METHODS: This cross-sectional and prospective study examined 26 patients with relapsing remitting MS and 24 healthy matched controls. 24-hour ambulatory blood pressure measurement were performed and evaluated for orthostatic hypotension. Serum levels of vitamin D, VDBP and VDR were evaluated by taking serum samples of the patients RESULTS: Serum vitamin D levels found to be significantly lower in MS patients than in controls (p:0,044) however there was no significant difference VDR ve VDBP levels in both groups. Autonomic dysfunction was detected in 38.4% of MS patients. Supine hypertension and orthostatic hypotension were found in MS patient group (p=0,023 and p=0,023). Variable Blood Pressure (BPV) systolic and diastolic significantly lower in MS patients than in controls (p=0,005 and p=0,015). There were a negative correlation between VDBP and EDSS and a positive correlation between vitamin D and 24-hour diastolic (BPV) in MS patients. (p=0,039, r=-0,406 and p=0,037, r=0,297). CONCLUSIONS: In addition to findings of known cardiac autonomic dysfunction, we found supine hypertension more than control in MS patients for the first time. BPV systolic and diastolic values were lower than control too. Keywords: Multiple Sclerosis,Vitamin D, Vitamin D Binding protein,Vitamin D Receptor

OP-108
COMPARISON OF IMMUNOASSAY METHODS IPTH MEASUREMENT IN HEMODIALYSIS PATIENTS

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OBJECTIVES: Intact parathyroid hormone (iPTH) test is used routinely in diagnosis, treatment and follow-up in patients with bone mineral disorders and chronic renal failure. Accumulation causes analytical problems due to reduced elimination of PTH C fragments in hemodialysis patients. We aimed to evaluate iPTH and analytical performance in hemodialysis patients with two immunoassay systems commonly used in routine laboratories (Abbott Architect i2000SR and Beckman Coulter DxI 800 Access). MATERIALS and METHODS: In analytical performance evaluation for iPTH test, LOD, LOQ and linearity studies were performed. The serum of 45 hemodialysis patients and 41 patients without renal insufficiency was used for accuracy evaluation. The samples were collected on five consecutive days and worked on both devices within the same day. For statistical evaluation of these data, Bland-Altman and regression analysis were used. RESULTS: In our study, inter-assay CV values for the three-level controls were found between 4.37-7.68% and intra-assay CV values were found between 3.60- 4.33% in the Abbott Architect i2000SR. LoB, LoD and LoQ values were found 0.31 pg/mL, 0.85 pg/mL and 2.4 pg/mL, respectively. For normal and high level controls in Beckman Coulter DxI 800 Access, CV% inter-assay was found 6.12-7.07%, intra-assay CV% was found 4.30-4.44%. LoB, LoD and LoQ values were found 0.42 pg/mL,1.04 pg/mL and 5.0 pg/mL, respectively. In the linear regression analysis, R2 value was calculated as 0.958 (y=0.65x-2.32) for hemodialysis patients and 0.985 (y=0.55x+1.40) for the control group. CONCLUSIONS: The acceptability of analytical performance and analytical compliance of these immunoassay tests used in our laboratory for hemodialysis patients have been demonstrated.
Keywords: Immunoassay, chronic kidney disease, luminescent measurements, parathyroid hormon.

OP-109
IS HIGH SENSITIVE TROPONIN I EFFECTED BY EGFR RATE IN ASYMPTOMATIC RENAL FAILURE PATIENTS?

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OBJECTIVES: Stably elevated troponin concentrations are commonly observed in renal failure patients in the absence of clinical evidence of myocardial damage. Specificity is even lower if newer, highly sensitive troponin assays are used. Based on the initial level, the overall accuracy for the diagnosis of AMI was acceptable for both sensitive and high-sensitive assays, although, depending on the assay, accuracy was lower for patients with renal dysfunction compared with those without. Consensus guidelines do not specify an assay preference. The aim of this study is to investigate the difference between hsTnI and cTnI assays in four groups of patients separated according to eGFR values. MATERIALS and METHODS: 378 outpatients were divided into 4 groups according to their eGFR values as Group 1:<30, Group 2: 30-60, Group 3: 60-90 and Group 4:>90mL/min/1.73m2. The high-sensitivite troponin I (Access hsTnI) and classic troponin I (Access hsTnI+3) concentrations were measured on Access2 Systems, Beckman Coulter. RESULTS: There was a weak but significant negative relationship between eGFR and hsTnI [log(y)=2.7-0.84log(x); R(2)=0.246] whereas there was no significant relationship between eGFR and cTnI [log(y)=1.19-0.09log(x); R(2)=0.021] when eGFR was taken into consideration as a continuous variable. CONCLUSIONS: Among asemptomatic patients who present with signs and symptoms suspicious for AMI, a change in troponin concentration (ie, rise or fall over three to six hours after presentation) should be used to define AMI, rather than a single value obtained on presentation. In this study, we found that hsTnI weakly increases with decreasing eGFR values, but cTnI is not affected by the change in eGFR values.
Keywords: Asymptomatic renal failure, AMI, cTnI, hsTnI, eGFR

OP-110
VITAMIN D LEVELS IN CHILDHOOD AND VITAMIN D SUPPLEMENTATION

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OBJECTIVES: Vitamin D is an essential nutrient that plays an important role in calcium homeostasis and bone health. The infants are at high risk of vitamin D deficiency in the first year of life. Vitamin D supplementation is a daily practice for the children in order to protect bone health. Mainly vitamin D supplementation is stopped at the age of one year; few children continue supplementation until walking, and very few until the age two. We aimed to screen vitamin D levels in children living in a high economic status hospital. MATERIALS and METHODS: Data was obtained retrospectively between 2013 and 2017. 792 children between the ages 9 months and 24 months who came to TOBB ETU Faculty of Medicine for rutine pediatric control were taken. The groups were divided according to age as 9 months-12 months (Group1; 278, 35%); 13-18 months (Group 2; 265, 33%); 18-24 months (Group 3; 104, 13%); 25-30 months(Group 4; 76, 10%) and 31- 36 months (Group5; 69, 9%). Serum 25(OH)D3 levels were determined by electrochemiluminescence immunoassay (Cobas 6000, Roche Diagnostics Co., Mannheim, Germany). RESULTS: According to the data, when the vitamin D values under 25 ng/ml were considered, deficiency rates for groups were 14%; 6,4%; 18,3%; 26,3% and 34,8% respectively, CONCLUSIONS: Considering that vitamin D prophylaxis lasted for 12 or 18 months, vitamin D deficiency has been observed to increase after 12 months. This indicates that vitamin D levels should be controlled in children who do not continue vitamin D supplementation and, if necessary, vitamin D supplementation should be initiated.
Keywords: Vitamin D, childhood, supplementation

OP-111
PROTECTIVE EFFECTS OF NIGELLA SATIVA ON CARBON TETRACHLORIDE-INDUCED HEPATOTOXICITY MODEL IN RATS

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OBJECTIVES: The potential protective effects of Nigella sativa oil (NSO) on carbontetrachloride-induced acute liver injury in rats was investigated in this work. Carbontetrachloride (CCl4) is an organic chemical, which causes tissue damage, especially to the liver. MATERIALS and METHODS: 32 healthy Wistar rats were divided into 4 groups which 200-300 grams of weight. Control group were received 0,4 mL/kg olive oil intraperitonealy for 14 days. NSO grup were received 0,4 mL/kg NSO intraperitonealy for 14 days. CCl4 group were received 0,4 mL/kg olive oil intraperitonealy for 14 days. On 14th day one hour after treatment CCl4 1 mL/kg (ip.) performed to rats. CCl4+NSO grup were received 0,4 mL/kg NSO intraperitonealy for 14 days. On 14th day, one hour after the treatment CCl4 1 mL/kg(ip.) was performed to rats. 24 hour after end of the experiment, blood samples were obtained from the animals. Then the rats were sacrificed and liver tissues were taken. AST, ALT and LDH activities were measured in the blood serum with spectrophotometric method. M 30 were measured with ELISA, 3-NT were measured with HPLC method in tissue homogenates 8-OHdG analysis in nuclear extract with ELISA. Caspase-3 and Caspase-9 activity were determined with immunohistochemical methods in liver tissues. RESULTS: This study has shown that damage occurs enzymatically in the CCl4 group. For M 30 and 8-OHdG levels there wasn't found significance. CCl4 was caused nitrosative damage. It was obtained that apoptotic indexes and 3-NT levels in group CCl4+NSY were lower than group CCl4. This decrease was found significantly (p=0,001). CONCLUSIONS: Consequently, It was determined that cells towards apoptosis as a result of CCl4 induced nitrosative damage. NSO has been found to inhibit apoptosis by protecting cells against nitrosative damage.
Keywords: Hepatotoxicity, Carbontetrachloride, Nigella Sativa, M 30, 8-OHdG,3-NT

INTRODUCTION
The liver is the largest and most important organ in our body composed of different functional and anatomical structures. It plays a leading role in filtering and clearing blood received from digestive tract prior to passing it to other body tissues and organs. Furthermore, it is involved in detoxifying the body from hazardous substances, including xenobiotics and toxins, and in mediating drug transformations and metabolism. So, the liver is highly susceptible to damage from different toxins, viruses, and reactive oxygen and nitrogen species (1,2). Such damage is often associated with liver metabolic and synthetic dysfunctions which can result in many disorders, ranging from the transient elevation of levels of hepatic enzymes to life-threatening hepatic fibrosis, cirrhosis of the liver, and even hepatocellular carcinoma (3).
There are more than 600 chemicals that cause damage to the liver, one of this is carbon tetrachloride (CCl4)(4,5). In experimental studies of liver, higher doses or longer exposure of CCl4, are more serious, permanent and develop over a longer period of time, such as fatty degeneration, fibrosis, mononuclear cell infiltration, cirrhosis and even cancer(6,7). At low doses, transient effects prevail, such as loss of Ca+2 sequestration, impairment of lipid homeostasis, the release of noxious or beneficial cytokines, and apoptotic events followed by regeneration(5).
Throughout the history of humanity, many diseases have been tried to be treated using plants. Approximately 25% of prescription drugs in developed countries are active ingredients of herbal origin(8,9). Nigella sativa has been described as a medicinal plant for the treatment of many diseases for more than 2000 years in many Middle Eastern and Far Eastern countries (10). Plants seeds and seed oil are the sources of the active ingradient (11). The seed oil of N. Sativa is well known for its strong antioxidant properties(12). Previous studies have documented that pre-treatment with TQ, the main active constituents in seed oil, protected organs against oxidative damage induced by a variety of free radical generating agents such as carbon tetrachloride. N. Sativa shows positive impacts on the CCl4 hepatotoxicity have been reported in many studies (13,14). Al-Ghamdi(15), investigated the effects of a liquid suspension of black cumin at CCl4-derived liver damage in rats and in conclusion, N.sativa shows a protective effect on the CCl4-dependent liver hepatotoxicity has been identified. Essawy et al(16)., in their study CCl4 administered to rats, black cumin seed orally and the effects on blood cells by morpological, cytological and biochemical aspects have been investigated. Research result dedicated the antioxidant properties of black seed and at hematopoietic cells showed significant protection from CCl4 created damage has been reported. In many studies, N.sativa seed is lethal for various cancer cells and production of tumour-specific antibodies like stimulating properties have been found (17). In our study; The protective effect of Nigella sativa oil against CCl4-induced acute liver injury was determied by measuring 8-OHdG and 3-NT levels and the antiapoptotic effect by M30, caspase-3 and caspase-9 activities.
MATERIALS and METHODS
Animals and Treatments:In this study.32 healthy Wistar rats were divided into 4 groups which 200-300 grams of weight. All rats were separated into four groups. These animals were fed ad libitum a diet including 20% crude protein, 0.88% calcium, phosphorus 0.44% on average, 3.7% crude fiber, 5.7% ash and 0.2% salt.The diet has 2600 kg/cal metabolic energy.
The rats in the control group were received 0,4 mL/kg olive oil intraperitonealy for 14 days. The rats in the Nigella sativa oil grup were received 0,4 mL/kg Nigella sativa oil intraperitonealy for 14 days. The rats in the CCl4 group were received 0,4 mL/kg olive oil intraperitonealy for 14 days. On 14th day one hour after treatment CCl4 1 mL/kg (ip.) performed to rats. The rats in the CCl4+ Nigella sativa oil grup were received 0,4 mL/kg Nigella sativa oil intraperitonealy for 14 days. On 14th day, one hour after the treatment CCl4 1 mL/kg (ip.) was performed to rats. 24 hour after end of the experiment, blood samples were obtained from the animals under ketamine anesthesia. The rats were sacrificed with ketamine anesthesia after blood collection in all groups. Liver tissues were washed with 0.9% NaCl and stored in formaldehyde for immunohistochemical studies and frozen at -80 ° C in liquid nitrogen for biochemical studies.The blood

was centrifuged at 3000 rpm for 5 minutes and the serum was separated. Serum was divided into eppendorf tubes and stored at -80°C.(Ethical approval number. NEÜ-2012-090).
Determination of liver functions.
Serums stored at -80 ° C were dissolved at room temperature and AST, ALT and LDH levels were measured in the autoanalyser and united as U / L.
8-OHdG Measurement in Liver Tissue
8-hydroxy-2-deoxyguanosine analysis in DNA extracts obtained from livers, using the appropriate kit (EIA Kit Cayman 589320 USA) and reading at 405 nm.
3-NT Measurement in Liver Tissue
Liver tissues stored at -80 ° C were frozen in liquid nitrogen and homogenized with potassium phosphate buffer (1: 3). 300 µL of TCA was added to precipitate homogenate proteins. The mixture was centrifuged at 3000 RPM for 5 min. 1 ml of 6 N HCl was added to the precipitate for hydrolysis and It was stored at 105 ° C for 24 hours. The supernatant was filtered through a 0.45 µm membrane filter to the HPLC (Agilent 1200, UV dedector) system. According to the standard 3-NT values obtained in HPLC, the sample 3-NT concentrations were obtained from the peak areas of the samples as µmol / L. By calculating the 3-NT concentration obtained for 1g of tissue, the amount of tissue 3-NT was given in the form of nmol / g tissue.
M30 Measurement in Serum
Serum apoptotic M30 antigen level M30 (EIA Kit Eastbiopharm CK-E90547) was quantitatively determined.
Determination of Caspase 3 and Caspase 9 Activities of Apoptotic Cells in Liver Tissues
Small pieces of liver tissue stored in 10% formol was taken and stored in 30% sucrose solution for 3 days and poly-L-lysine coated slides were taken for 5 microns thick caspase 3 and caspase 9 separately. preparations stained with primary antibody caspase 3 (Abcam ab 4051) and caspase 9 (Abcam ab 4053) secondary antibody Texas red (sc-2780)
Slides were covered with DAPI fluorescent closure solution. Prepared preparations were examined with a photo attachment fluorescence microscope with Texas Red and UV filters and evaluations were made. Using the UV filter of the fluorescent microscope; blue fluorescent cells were identified and counted with DAPI. Apopitotic indexes were calculated by positive red cell counts and red fluorescent labeled caspase 3 and caspase 9 positive apoptotic cell counts in the counted 100 cells.
Statistical analysis
Statistical analysis was performed with Minitab-14 program. Normal dağılım Kolmogorov Simirnov testi ile belirlendi. Accordingly, the results of M30, 8-OHdG, Caspase 3 and Caspase 9 were not evaluated as normal and non-parametric Krukal-Wallis variance analysis was used and Mann-Whitney U Test and Bonferroni correction were used to determine the difference between the groups. The results of AST, ALT, LDH and 3-Nitrotyrosine were analyzed using the parametric Anova variance analysis. and Post Hoc Tukey HSD test. p <0.05 was considered to be significant.
RESULTS
Liver Tissue Morphological Findings
When the macro images of liver tissues after sacrification are examined, CCl4 treated group had significant degeneration and lubrication. It was observed that the lubrication decreased in the NSY group with CCl4. Only in the NSY group, it was determined that the lubrication started. Liver images of the groups are shown in Figure 1.

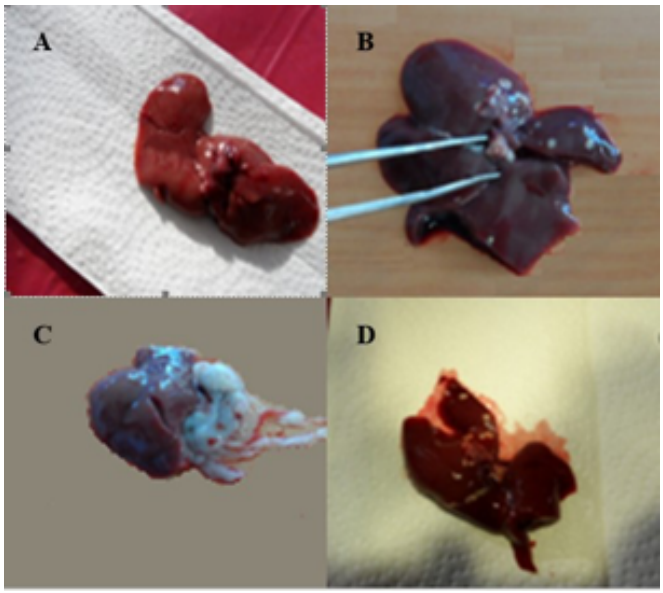

Figure 1. Liver tissues taken from rats A: Liver tissue in control group
B: NSY group liver tissue C: CCl4 group liver tissue D: CCl4 + NSY group liver tissue

Aspartate Aminotransferase (AST), Alanine Aminotransferase (ALT) and Lactate Dehydrogenase (LDH) Results
Enzyme levels measured by autoanalyser AST values approximately 25 times ALT values were 60 times, and LDH values were increased 2 times in CCl4 group compared to the control group. In the group given CCL4 and NSY, these values were found to be close to the control group. The levels and statistical results of these enzymes are given in Table 1.

Table 1. AST, ALT and LDH Results and Statistics

Gruplar	n	AST (U/L) Mean ± SD	ALT (U/L) Mean ± SD
Kontrol	6	189±81,221	61,83± 17,371
NSY	6	172,33± 58,732[c]	68,83±20[c]
CCl_4	10	3992,50±373,901[a,b,c]	3484,38± 831,364[a,b,c]
CCl_4 + NSY	10	353,78±151,216[b]	94,56± 21,755[b]

a: Control- CCl4 : p<0,001 b: CCl4 - CCl4 + NSY : p<0,001 c: NSY- CCl4 : p<0,001
d: Control- CCl4 : p<0,016 e: CCl4 - CCl4 + NSY: p<0,005 f: NSY- CCl4 : p<0,002

Results of 3-Nitrotyrosine
3-NT results measured in liver tissue by HPLC system were found to increase in CCl4 group. In the CCl4 + NSY group, 3-NT levels were significantly lower. The difference between the groups was statistically significant (p <0.001). Table 2.

Table 2. 3-NT, 8OHdG and M30 Results and Statistics

Gruplar	n	3 NT (nmol/g) Mean ± SD	8OHdG (pg/ml) Mean ± SD
Kontrol	6	717,5±118,76	535,6±74,7[x]
NSY	6	1021,83±32,52[d]	541,8±89,5[x]
CCl_4	10	2257,7±696,44 [a,c,d]	607,3±62,8[x]
CCl_4 + NSY	10	1317,8±211,64 [b,c]	568,2±130,7[x]

a : Kontrol- CCl4 :p<0,001 b:Kontrol- CCl4 + NSY:p<0,001 c : CCl4- CCl4 + NSY :p<0,001
d: CCl4- NSY :p<0,001 x : p>0,005

8-OHdG Results and Statistics
In the DNA samples isolated from liver tissue, 8-OHdG levels increased in CCl4 group compared to the control group. 8-OHdG levels were increased in the NSY group with CCl4 but this increase was lower than the CCl4 group. The difference between the groups was not significant (p>0,05). 8-OHdG results are given in Table 2.
M30 Results
The M30 levels determined by the ELISA method, was observed that CCl4 group increased compared to the control group. M30 levels in the group given CCL4 and NSY, was found to be lower than CCl4 group. The difference between the groups was not significant (p>0,05). M 30 results are given in Table 2.
Caspase 3 Results
In liver tissues stained with immunohistochemical methods, Increased Apoptotic cells stained with Caspase 3 in the CCl4 group, Nigella sativa oil application reduces the number of apoptotic cells, In the control group and only Nigella sativa oil groups, apoptotic cells were found to be negligible.
The difference between the groups was significant (p = 0.001). Microscopic images of caspase 3 activities in hepatocytes and apoptotic indices are given in Figüre 2 and Table 3.

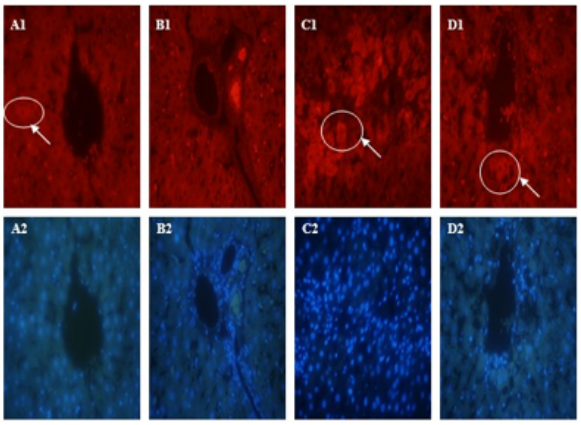

Figure2. Caspase 3 activity results;A1: control group apoptotic cells B1:NSY group apoptotic cells C1:CCl4 group apoptotic cells D1:CCl4+NSY group apoptotic cells.
A2: Live cell nuclei in the control group B2: Live cell nuclei in the NSY group
C2: Live cell nuclei in the CCl4 group D2: Live cell nuclei in the CCl4+NSY group.

Caspase 9 Results

In liver tissues stained with immunohistochemical methods, Increased Apoptotic cells stained with Caspase 9 in the CCl4 group, Nigella sativa oil application reduces the number of apoptotic cells, The control group and only Nigella sativa oil groups were found to have 1-2 apoptotic cells. The difference between the groups was significant (p = 0.001). Microscopic images of caspase 9 activities in hepatocytes and apoptotic indices are given in Figure 3 and Table 3.

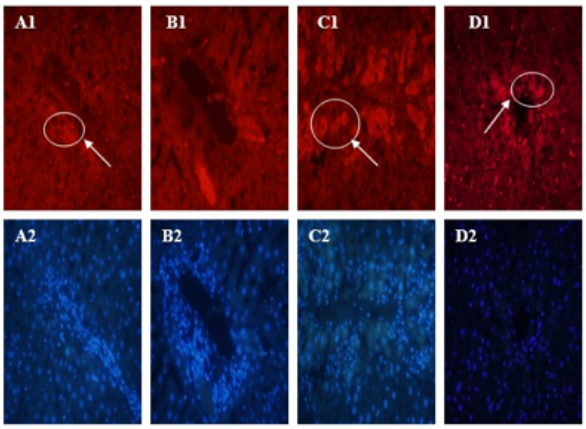

Figure 3. Caspase 9 activity results;A1: control group apoptotic cells B1:NSY group apoptotic cells C1:CCl4 group apoptotic cells D1:CCl4+NSY group apoptotic cells.
A2: Live cell nuclei in the control group B2: Live cell nuclei in the NSY group
C2: Live cell nuclei in the CCl4 group D2: Live cell nuclei in the CCl4+NSY group.

Table 3. Caspase-3 and Caspase-9 Apoptotic index and statistics

Groups	n	CASPASE-3 Median (min-max)	CASPASE-9 Median (min-max)
Control	6	0,25(0-2)	0(0-1)
NSY	6	0,25(0-2)[b,d]	1,15(0-2)[b,d]
CCl_4	10	25(20-30)[a,b,c]	22,5(19-32)[a,b,c]
CCl_4 + NSY	10	10(7,2-12)[c,d,e]	10(7,5-12)[c,d,e]

a: Control- CCl4 :p=0,001 b:NSY- CCl4 :p=0,001 c:CCl4 - CCl4 + NSY :p=0,001
d: NSY- CCl4 + NSY :p=0,001 e: Control- CCl4 + NS :p=0,001

DISCUSSION

Recently, the effects of many plants on the prevention of liver damage have been investigated. A wide range of research is being carried out in this area regarding the seeds, oil and active ingredients of Nigella sativa. According to present literatüre, many plant sources have been used against the negative effects of carbon tetrachloride for long time(18). Nigella sativa is one of the most known among them, traditionally used against a wide range of diseases. Jaswal and shukla(19). studied therapeutic effects of N.sativa seed extract on carbon tetrachloride induced liver injury, their biochemical and histopathological results showed that the aqueous extract of seed can be used as the hepatoprotective agent. Kanter (20). emphasized that black cumin seeds have been protective effects in rat liver at their study too. CCI4 is applied in a single dose in many studies, AST, ALT and LDH values increased significantly within 24 hours after acute toxicity conducted in Turkey and abroad (21). In our study, acute hepatotoxicity was observed in CCI4 group in accordance with the literature. There was a significant increase in AST, ALT and LDH values only in CCI4 group, Increased levels of AST, ALT and LDH in the Nigella sativa oil group were significantly lower before CCI4 was given and the values in this group were close to the values in the control group.

In the literature, there are publications reporting that CCI4 causes oxidative (22) and nitrosative damage (23,24). In our literature, we did not find any study such as our study investigating the effect of Nigella sativa on liver tissue against stress caused by CCI4. 8-OHdG is formed by the oxidation of the OH radical to the 8th carbon of the guanine from the DNA bases. 8-OHdG reflects DNA damage in oxidative stress.

From Kadiiska et al and Aksit(24,25) studies, 8-OHdG levels were given to CCl4 dose and depending on the expected time for toxicity After CCl4 administration, these peaks decrease after a certain time period. Nakamoto et al (26). reported that there was no significant difference between the groups 24 hours after CCl4 administration. In our study, blood samples were taken 24 hours after application of CCl4 (1ml / kg i.p.) to rats and rats were sacrificed and liver tissues were taken. It was observed that 8-OHdG levels increased in liver tissues compared to control group in CCl4 group. In the CCl4 + NSY group, 8-OHdG levels increased and this increase was lower than the CCl4 group. The difference between the groups was not statistically significant (p> 0.05). The dose (1 ml / kg i.p.) CCl4 given to the rats does not reflect the oxidative stress at the end of 24 hours in terms of 8-OHdG parameters.

3-nitrotyrosine is a frequently used indicator of nitrosative damage. Soleimani et al. (27), in their study, have proven that CCl4 induced nitrosative stress. Taysi et al. (28) investigated the antioxidant and radioprotective effects of Nigella sativa oil on cataracts induced by ionizing radiation in lenses. Nitrosative stress parameters were significantly decreased in the NSY and TQ groups compared to the IR group. The 3-NT levels we measured as an indirect marker of peroxynitrite were increased only in the CCI4-treated group.In the group with Nigella sativa oil before CCI4 administration, the increase in 3-NT levels was suppressed. The difference between the groups was found to be statistically significant (p <0.001). In accordance with the literature, CCl4 produced nitrous damage to the liver. Nigella sativa oil is protected against damage by inhibiting the increase in peroxynitrite by antioxidant effect. Damage cannot be repaired when increased amount of peroxynitrite reaches cellular damage level and cell is directed towards death by apoptosis or necrosis (29).

Cytokeratins released into the serum reflect the stage after the end of cell death. M30 levels are not liver-specific but indicate circulating apoptosis. Serum M30 levels of circulating apoptosis in our study, Increased in CCl4 group compared to control groups, In the NSY group with CCl4, however, the difference between the experimental groups was found to be statistically insignificant. Apoptosis can be triggered by extracellular or intracellular signals. Apoptotic indices for caspase 8 and caspase 9 antigens in tissues, It can be interpreted that apoptosis is induced by receptor-mediated extrinsic or mitochondrial-mediated intrinsically. Caspase 3 is the intersection of these two pathways. CCl4 has been reported to increase apoptosis by activating Caspase 3 in the liver (30). In our study, activation of caspase 3 and caspase 9 in liver tissue was investigated. There was almost no apoptosis in the control groups, Apoptosis significantly increased in CCl4 group and CCL4 and Nigella sativa oil were found to be decreased in the given groups. We think that nigella sativa oil inhibits apoptosis by protecting cells against damage.

As a result; Nigella sativa oil inhibits apoptosis by suppressing nitrosative stress and protects the liver from damage caused by toxicity.

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OP-112
INVESTIGATION OF LITHIUM CARBONATE'S EFFECT ON HUMAN BLOOD LYMPHOCYTES IN IN VITRO ENVIRONMENT

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OBJECTIVES: Lithium is an important drug which is used in the treatment and prophylaxis of depression and manic-depressive illness. Lithium has the narrow therapeutic treatment range and it has too much potential side effects. In this study we aimed to investigate cytotoxicity, genotoxicity and oxidative effects of lithium at different concentrations on lymphocytes in in vitro environment. MATERIALS and METHODS: Different concentrations of LiCO3 (lithium carbonate) solutions, Negative and Positive control groups were prepared. After 24 hours of incubation MTT((3-[4,5-dimethylthiazol-2-yl]-2,5 diphenyl tetrazolium bromide)) assay was performed. After 36 hours the genotoxicity investigated with the comet assay method, the oxidative-antioxidative effects were investigated with a colorimetric method. RESULTS: 1mM lithium almost had no cytotoxic effect on cells by the MTT assay but with increasing concentrations of lithium this cytotoxic effect found to be increased. When groups were compared in terms of TAS (total antioxidant status) levels; 1mM Lithium carbonate containing group was higher than the other groups and significantly higher than negative control group ($p<0.05$). When groups were compared in terms of the DNA damage and TOS (total oxidant status) level, lithium-treated groups had no significant difference compared with the negative control group ($p> 0.05$). CONCLUSIONS: Based on our findings, lithium carbonate can be used as a reliable drug at the mean therapeutic concentration of 1mM because of the antioxidant properties at these doses, we can say that these doses may have protective effect against oxidative damage and cytotoxic effect due to its antioxidant property and the therapeutic effect may be related to this antioxidant property.
Keywords: Antioxidant, Cytotoxicity, Genotoxicity, Lithium, Oxidant

OP-114
IN ACUTE DISTAL COLITIC RATS; HEALING EFFECT OF MEDICAL OZONE THERAPY

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[5]Department of General Surgery, Inonü University Faculty of Medicine, Malatya. Scientific content of the study.

OBJECTIVES: To investigate the effect of medical ozone treatment on the experimental acute distal colitis in rats. MATERIALS and METHODS: Eighteen rats were randomly distributed into three equal groups; control, acute distal colitis (ADC) without and with medical ozone treatment. Rats in the control group were taken saline. ADC was performed by rectal way with 4% acetic acid in groups 2 and 3, and the group 3 was treated with medical ozone for three weeks both rectally and intraperitoneally. At the twenty second day the distal colons samples were obtained for malondialdehyde and myeloperoxidase, blood samples were obtained to measure the levels of TNF-α and IL-1β levels. Histolopatological examination was evaluated with Ki-67, IL-1β and VEGF immunostaining densities. RESULTS: There was significant increase in tissue MDA, MPO activity, TNF-α and IL-1β after ozone administration. There was also a significant difference at immunostaining densities of histopathological examination CONCLUSIONS: Medical ozone treatment ameliorated the experimental acute distal colitis induced by acetic acid in rats. Its possible effect is by means of decreasing inflammation, edema, and affecting the proliferation and the vascularization
Keywords: Ozone, Acetic Acid, Colitis, Rats

OP-115
ANTIPROLIFERATIVE EFFECTS OF THYMOQUINONE IN HEPG2 CELLS INVOLVE INCREASED CERAMIDE AND CASPASE 3

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OBJECTIVES: Previous studies have shown that thymoquinone (TQ), an active compound of black seed, has anticancer properties. However, the antiproliferative mechanisms of TQ on cancer cells is unclear. Our study aimed to investigate the impact of TQ on neutral sphingomyelinase activity (N-SMase), ceramide levels and apoptotic pathways in HepG2 human liver cancer cell line. MATERIALS and METHODS: Antiproliferative effect was exerted in HepG2 liver cancer cells via TQ incubation at different doses and durations. Cell viability was measured by MTT assay. Levels of C16-C24 sphingomyelins (SM) and C16-C24 ceramides (CER) were determined in cell lysates by an optimized multiple reaction monitoring (MRM) method using ultra fast-liquid chromatography (UFLC) coupled with tandem mass spectrometry (MS/MS). Neutral sphingomyelinase enzyme activity was measured by a colorimetric assay. Caspase -3 activity in cell lysates was measured via a fluorometric method RESULTS: Incubation with 100-200 μM TQ for 18 hours significantly decreased cell viability when compared to control. A significant increase was observed in N-SMase activity, cellular levels of C16-C24 CERs and

caspase-3 enzyme activity in cells treated with 100-200 µM TQ for 24 hours compared to controls. A significant decrease was found in C16 SM levels in cells treated with 200 µM TQ for 24 hours compared to controls. CONCLUSIONS: Our data suggests that N-SMase, caspase-3 and CER levels can be regulated in HepG2 human liver cancer cells by TQ treatment and that TQ can potentially be a pharmaceutical agent in the treatment of liver cancer
Keywords: Liver cancer, thymoquinone, neutral sphingomyelinase, ceramide

OP-116
THYMOQUINONE UPREGULATES NEUTRAL SPHINGOMYELINASE ACTIVITY AND CERAMIDE LEVELS IN MCF7 CELLS

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OBJECTIVES: Previous studies have shown that thymoquinone (TQ), an active compound of black seed, has anticancer properties. However, the antiproliferative mechanisms of TQ on cancer cells is unclear. Our study aimed to investigate the impact of TQ on neutral sphingomyelinase activity (N-SMase), ceramide levels and apoptotic pathways in MCF-7 human breast cancer cell line. MATERIALS and METHODS: Antiproliferative effect was exerted in MCF-7 breast cancer cells via TQ incubation at different doses and durations. Cell viability was measured by MTT assay. Levels of C16-C24 sphingomyelins (SM) and C16-C24 ceramides (CER) were determined in cell lysates by an optimized multiple reaction monitoring (MRM) method using ultra fast-liquid chromatography (UFLC) coupled with tandem mass spectrometry (MS/MS). Neutral sphingomyelinase enzyme activity was measured by a colorimetric assay. Caspase -3 activity in cell lysates was measured via a fluorometric method. RESULTS: Incubation with 100 µM TQ for 18 hours significantly decreased cell viability when compared to control. 24 hour treatment of cells with equal amount of TQ caused a more pronounced decrease in cell viability. A significant increase was observed in N-SMase activity and cellular levels of C16-C24 CERs in cells treated with 100 µM TQ for 24 hours compared to controls. A significant decrease was found in C16 SM levels in cells treated with 100 µM TQ for 24 hours compared to controls. CONCLUSIONS: Our data suggests that N-SMase and CER levels can be regulated in MCF-7 human breast cancer cells by TQ treatment and that TQ can potentially be a pharmaceutical agent in the treatment of breast cancer.
Keywords: Breast cancer, ceramide, neutral sphingomyelinase, thymoquinone,

OP-141
DETECTION OF AFP VALUES IN PATIENT WITH ATAXIA TELANGIECTASIA

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OBJECTIVES: Ataxia telangiectasia (A-T) is a rare disease, characterized by cerebellar ataxia, telangiectasia immunodeficiency, radiation sensitivity, and cancer predisposition. A-T is a genome instability disorder, and associated with elevated serum alpha fetoprotein (AFP) and hipogamaglobulinemia. The purpose of this study to determine serum AFP levels in patients with A-T, and to get attention to the importance of this disease
MATERIALS and METHODS: Retrospectively serum AFP levels in patient with A-T were investigated. Median and IQR were calculated. The change in immunoglobulin values were investigated.
RESULTS: Total 51 subject diagnosed as A-T, in whom 22 were boys, were included into the study. The mean age was 8,8 ± 5,7Median AFP value was found to be 147,12 ng/mL (IQR 28,03 -357,12). There was a positive correlation between age and AFP levels with a 0,81 of correlation coefficient.
CONCLUSIONS: Elevated serum AFP is important biomarker in diagnosis of A-T.
Keywords: Alpha fetoprotein, Ataxia telangiectasia, Rare disease

OP-117
THE PREVALENCE OF ILLEGAL SUBSTANCE USE IN BALIKESIR REGION; A LABORATORY DATA MINING STUDY

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OBJECTIVES: Drug abuse screening test is performed clinical toxicology, forensic toxicology and social toxicology (start of work, sport and school) areas. The purpose of this study is showed the prevalence of illegal substance use in our region according to drug abuse screening test results of our laboratory. MATERIALS and METHODS: In this study, the data of urine specimens accepted to the Balikesir State Hospital Clinical Biochemistry Laboratory for substance analysis between July 2016 and July 2018 was retrospectively analyzed from the laboratory information system. Substance screening was performed for the tests of amphetamine, benzodiazepine, opiate, cocaine, cannabis, buprenorphine, barbiturate, ecstasy, and bonzai-1, 2, 3. After the sample was delivered, the characteristics of urine (quantity, temperature, appearance) and urine composition (creatinine, pH, density, nitrite, oxidant) were analyzed for suitability. Inappropriate samples were rejected. RESULTS: During this period, 3422 samples were accepted for urine analysis in 2771 patients (E: 97.4%, K: 2.6%). 95.6% of the cases were of probation, 1.2% of the clinics (emergency and intensive care) and 3.2% of came for the job application. According to the number of patients, the positivity rate was 5.6% and the positivity rate was 12.6% according to the total number of samples analyzed. The most commonly used substance in our study was cannabis. This was followed by ecstasy, amphetamine, bonzai 3 and benzodiazepine. CONCLUSIONS: In conclusion, analysis of the substance use profile based on the laboratory data of the region, information on substance use prevalence and profile is thought to be useful for preventive studies.
Keywords: Probation, Drug Abuse Screening Test, Urine

OP-118
25-OH VITAMIN D3 DEPENDENT INTACT PARATHYROID HORMONE REFERENCE VALUE STUDY

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OBJECTIVES: We aimed to determine the reference range for intact-PTH relative to different levels of vitamin D for our population in order to provide more effective diagnostic and therapeutic results in accordance with IFCC standards in line with our clinical needs. MATERIALS and METHODS: Healthy 513 subjects included in the study were divided into 3 groups according to 25-OHVitD3 levels(25-OHVitD3<20ng/ml=Group I,20 ng/ml ≤25-OH Vit D3<30ng/ml=Group II,25-OH Vit D3≥30ng/ml=Group III). Calcium,magnesium,phosphorus,25-OHVitD3,Abbott I-PTH were studied in serum samples;eGFR values were calculated.The I-PTH reference interval was calculated according to different 25-OHVitD3 levels.I-PTH levels in Roche and Siemens instruments were measured in 472 of populations to determine the relationship between different methods. RESULTS: 154 of the population were in group I,111 were in group II,248 were in group III.I-PTH levels of all populations were found to moderately correlate with 25-OHVitD3 levels(Spearman r=-0.568,P<0.001).The Abbott I-PTH values were highly correlated with Siemens and Roche I-PTH values(r= 0.941, r=0.957,P<0.0001;respectively),the I-PTH median/mean values were statistically different from each other(56.2/62.7±26.0, 44.7/50.3±20.9, 33.6/37.1±14.8,P<0.0001).The widest reference interval belonged to the Abbott method.As Abbott I-PTH levels were influenced by 25-OH Vit D3 levels, the reference interval value meeting the clinical need for Group III reference population was determined to be 17.7-90.9pg/ml. CONCLUSIONS: Each laboratory should determine the reference interval for each method that doesn't have absolute compliance,considering its clinical needs according to its own population. As the D vitamin affects the parathormone level,I-PTH reference range study should also be determine to be different 25-OHVitD3 levels and I-PTH reference intervals should be reported according to 25-OHVitD3 level if possible.
Keywords: Parathyroid hormone, Vitamine D, Reference value

OP-119
BIOCHEMICAL EVALUATION OF A NOVEL ANTI-CANCER DRUG CANDIDATE

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OBJECTIVES: In this study, we aimed to evaluate anti-cancer drug candidacy of a novel palladium(II) barbiturate complex with a comparison to cisplatin side-by-side, because it is also a heavy-metal-based compound and an established anti-cancer drug. MATERIALS and METHODS: We analyzed the cytotoxic effects of palladium compound in various breasct cancer cells, analyzed cell death mode and serum biochemistry profile after injections into mice. RESULTS: We found that our compound has 14-fold lower IC50 values with an apoptotic cell death via cleaved PARP, cleaved caspase 3, bax, bid and bcl-2 in MDA-MB-231 cells. Serum biochemistry analysis in mice showed that palladium compound was superior to cisplatin in terms of kidney damage. The serum urea, but not creatinine levels were significantly increased cisplatin, but not after any of palladium dose groups suggesting that the cisplatin-induced nephrotoxicity is probably not a risk for our compound. On the other hand, only 2.5 mg/kg palladium dose increased the serum AST levels, but not ALT or ALP parameters suggesting for a possibility of liver damage. Cisplatin also increased AST levels, but this was not significant. Serum albumin, total protein and cholesterol levels generally remained the same in all treatment groups. These results were also supported by histological analyses of the relevant organs.

CONCLUSIONS: Altogether, our results suggest that we may have a more potent anti-cancer drug candidate than cisplatin in terms of in vitro anti-cancer activity found by more cytotoxicity and apoptotic cell death and in vivo drug candidacy shown by a more preferrable serum biochemistry profile for tissue damage.
Keywords: kanser, ilaç, serum biyokimyası, cisplatin, palladyum

OP-120
INVESTIGATION OF ANTICANCER POTENTIAL OF SILICON (IV) PHTHALOCYANINE AND NAPTHALOCYANINE

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OBJECTIVES: Cancer is the second most common cause of death after cardiovascular diseases in worldwide. Silicon (IV) phthalocyanines and naphthalocyanines are promising molecules for diagnostic and therapy usage in cancer. In this study, anticancer potential of two water soluble novel silicon (IV) phthalocyanine and napthalocyanine bearing pyridine group using different techniques were investigated. MATERIALS and METHODS: The binding properties of two water soluble novel silicon(IV) phthalocyanine and napthalocyanine bearing pyridine groups (1a and 2a) with CT-DNA were investigated absorption titration, competitive ethidium bromide and electrophoresis experiments. The DNA cleavage activities and topoisomerase I and II inhibition properties of compounds were investigated using pBR322 DNA on agarose gel electrophoresis. The cytotoxic effects of the compounds were tested against human lung (A549), breast (BT-20), liver (SNU-398), prostate (DU-145) cancer and melanoma (SK-MEL 128) cell lines using MTT assay. RESULTS: The DNA binding studies showed that compounds interacted with CT-DNA strongly. The compounds showed low cleavage activities in the dark whereas they had remarkable photocleavage effects via singlet oxygen pathways under irradiation. The compounds showed moderate topoisomerases inhibition compared to irinotecan and doxorubicin which are used as positive controls. The CC50 values of compounds 1a/2a were determined as 6.06/6.05, 15.02/19.04, 2.15/40.23, 15.61/35.19 and 7.78/7.46 µM toward A549, BT-20, SNU-398, DU-145 and SK-MEL 128. CONCLUSIONS: The results suggested that the compounds are a very promising candidate as an anticancer agent compared to cis-platin as a positive control.
This study was supported by The Scientific & Technological Research Council of Turkey (TÜBİTAK, project no: 116Z364).
Keywords: CT-DNA, cytotoxicity, pBR322, topoisomerase.

OP-121
A NEW APPROACH FOR TARGETED CANCER THERAPY: SYNTHESIS AND CHARACTERIZATION OF NANOPARTICLE

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OBJECTIVES: According to the World Health Organization's data, cancer is the second cause of deaths worldwide. The adverse effects and limitations caused by current cancer therapies require the development of new treatment modalities. The aim of this study was developing a drug delivery system to reduce the limitations and adverse effects caused by conventional cancer therapies. MATERIALS and METHODS: Chitosan-hyaluronic acid nanoparticles (CS-HA-NPs) formed by ionic gelation method were loaded with doxorubicin. Amount of the drug to be loaded and of hyaluronic acid and the drug adsorption yield at different pHs were determined by SEM and spectrophotometer. Zeta-Size, FTIR analyses, and in vitro drug release experiments of doxorubicin-loaded CS-HA-NPs prepared under optimal conditions were performed. RESULTS: The most efficient amount of HA was determined to be 10 mg. The optimal pH of the drug loading by the adsorption method to the nanoparticulate structure was determined to be 8. Optimum drug concentration was determined as 1.5mg/mL with 89.8% of adsorption yield. At the end of 6 hours, the nanoparticular drug delivery system releases 44.6% of the drug at pH 7.4 while it is released 61.5% at pH 5.5. CONCLUSIONS: Nanoparticular structure wasn't formed with low amount of HA, but extreme HA amount caused large-sized nanoparticles. It is seen from in vitro drug release studies that carrier system released the drug in controlled manner. Moreover, the system released the drug more at acidic pH than physiological pH. When considered all data, it is considered that prepared carrier system has a potential for targeted cancer therapy.
Keywords: Drug Delivery System, Doxorubicin, Hyaluronic Acid Nanoparticle, Targeted Cancer Therapy

Introduction
According to World Health Organization's (WHO) data, cancer is the second leading cause of death and is a large group of diseases characterized by the growth of abnormal cells that can invade neighbor organs and spread to body. Tumor blood vessels have some abnormalities such as high proportion of proliferating endothelial cells, deficiency of pericyte and atypic membrane formation leading to an enhanced vascular permeability. Endothelial pores have size varying from 10- 1000 nm. Additionally, lymphatic vessels are absent or non-functional in tumor. These features of tumor have been called "Enhanced Permeability and Retention Effect". While normal tissues and blood pH is 7.4, extracellular tumor pH is between 6 to 7 [1]. WHO stated the cancer therapies as surgery, radiotherapy and systemic therapy. These conventional cancer treatment strategies are non-specific to the cancer cells causing undesirable adverse effects to the healty tissues. Cytotoxic agents are commonly used for cancer therapy, however, that agents can have some limitations such as poor aqueous solubility, non-specific biodistribution, severe toxicity to normal cells, inadequate drug concenration to cancer cells. Nanomedicine can help to solve these limitations via increasing aqueous solubility and drug efficiacy and improving the therapeutic index. Nanoparticles are used in cancer therapy and their size varies between 1-1000 nm. Delivery of nanoparticles to the tumor tissue can be performed via active and/or passive targeting [2]. Polymeric nanoparticles can be formed with natural or synthetic polymers. Drugs could be entrapped within polymer or adsorbed to nanoparticle surface [3]. Hyaluronic acid is a natural polymer composed of N-acetyl-D-glucosamine and D-glucuronic acid. It can be used in biomedical applications because of its biodegredable, bicompatible, non-toxic and non-immunogenic features [4]. Chitosan is a natural, non-toxic, biodegredable and polycationic polysaccharide [5] which is produced via deacetylation of chitin [6]. Hyaluronic acid and chitosan can be used together to produce polyelectrolyte complexes for drug delivery thanks to polyanionic character of hyaluronic acid and polycationic feature of chitosan [4]. Doxorubicin is an intercalation agent and anthracycline antibiotic with antineoplastic activity [7]. Doxorubisin causes severe toxic side-effects such as cardiotoxicity, vomiting, leucopenia and stomatitis, thus, it is loaded to drug delivery system to reduce that side-effects [8]. The aim of this study was developing a drug delivery system to reduce the limitations and adverse effects caused by conventional cancer therapies and evaluation of cytotoxic efficiency of the system.
Materials and Methods
Hyaluronic acid-chitosan nanoparticles (HA-CS NPs) were synthesized via ionic gelation method. 0.11% (w/v) chitosan solution is prepared in acetic acid solution. After pH of chitosan solution was adjusted to 4.7-4.8, 14 mL of varying concentrations of low molecular weight (LMW) HA and 0.44 mg/mL tripolyphospate (TPP) containing solution was added dropwise into equal volume of chitosan solution and reaction medium were incubated at 25 □C and for 20 minutes. Nanoparticles were seperated via centrifugation. Doxorubicin (Dox) was loaded into HA-CS NPs by using adsorption method. HA-CS NPs were dispersed in 2 mL of Dox solution and incubated for 16 hours at 37 □C. To optimize adsorption pH, HA-CS NPs were dispersed in doxorubicin solutions prepared in pH 6 acetate buffer; 7 and 7.4 phosphate buffered saline; 8; 8.5 and 9 tris buffers. Moreover optimization study of drug quantity to be loaded was carried out by incubation of HA-CS NPs with varying concentrations of Dox solutions in pH 8 tris buffer. Loaded drug amount and loading yield was determined via visible spectroscopy. FTIR, Zeta-Size and SEM analysis of both empty and Dox loaded HA-CS NPs were carried out. In vitro drug release studies of Dox loaded HA-CS NPs prepared in optimum conditions and of free drug were performed in asidic (5.5) and physiological (7.4) pH.
Results and Discussion
The most efficient HA concentration to form HA-CS NPs was determined as 0.1 mg/mL via SEM analysis. While under 0.1 mg/mL HA concentration, HA-CS NPs were not formed, HA-CS NPs formed with 0.2 mg/mL HA were seen bigger. According to Zeta-Size anaylsis HA-CS NPs were measured as 327.6 nm. In addition, FTIR analysis showed that HA-CS NPs were comprised both HA and CS as expected. Although adsorption yield was increased during pH rises, optimal adsorbtion pH was selected as 8 due to changes of Dox's character at pH 8.5 and 9. In drug absorbtion study, after 1.5 mg/mL, Dox adsorption yield decreased from 89.8% to 75.7%, thus, optimum drug quantity was selected 1.5 mg/mL. Dox loaded HA-CS NPs were spherical in shape, 286.6 nm in size according to SEM and Zeta-Size analyses respectively. According to in vitro drug release studies, at the end of the 6 hours Dox loaded HA-CS NPs released 44.6% of drug at pH 7.4 and released 61.5% at pH 5.5. However free drug was released 37.3% at pH 7.4 and 74% at pH 5.5 at the end of the 1.5 hours. These results indicated that HA-CS NPs released the drug in controlled manner at more asidic pH which is alike tumor microenvironment.
Conclusion
According to all data, it is seen that Dox loaded HA-CS NPs were synthesized properly. The synthesized drug delivery system had controlled drug release profile and released the drug at asidic pH than physiological pH. As a result, Dox loaded HA-CS NPs could have a potential for the targeted cancer treatment to reduce the toxicity and to increase the therapeutic index.
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OP-122
BIOCHECMICAL AND MOLECULAR RESPONSE TO PERSONALIZED RADIOLIGAND THERAPY AT METASTATIC PROSTATECANCER

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OBJECTIVES: In this study, we aimed to assess the anatomical and molecular response with Gallium(Ga)-68 PSMA Positron Emission Tomography/ Computed Tomography (PET/CT) and prostate specific antigen (PSA) response to applied Lutetium(Lu)-177 prostate specific membrane antigen in patients who were diagnosed with castration resistant metastatic prostate cancer and progression developed despite all treatments with survival advantage. MATERIALS and METHODS: The data of fifteen male patients to whom applied 3 or 4 circle of Lu-177 PSMA treatment was analysed retrospectively. Serum PSA values and Ga-68 PSMA PET/CT images were compared before and after the therapy. RESULTS: Fifteen male patients with mean 64±8 age had mean 8 (6-10) Gleason score. While serum PSA values were mean 204 ng/ml before therapy, it was calculated as 49 ng/ml after treatment (p:0.027). When PET/CT images before and after the therapy were compared, regression in five patients (33%), progression in three (20%) patients and mix response in seven (47%) patients were observed molecular and anatomically. After the therapy, PSA regression was observed in nine of fifteen (60%) patients, progression was determined in five (33%) and the rest one (7%) was stable. CONCLUSIONS: Regression in metastasis was observed via Lu-177 PSMA treatment., in patients with castration resistant metastatic prostate cancer. This was thought as the therapy is successful. After the therapy, PSA response in 60% patients and molecular and anatomic response was observed in 1/3 patients. In follow up, in addition to serum PSA response, it is thought that assessment of anatomical and molecular response via Ga-68 PSMA PET/BT has also a great importance. Keywords: prostate cancer, PSMA, radyoligand therapy

OP-123
THE COMPARISON OF GENE EXPRESSION OF INDIVIDUALS WITH LOWER G6PD ENZYME ACTIVITY

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OBJECTIVES: Glucose 6-phosphate dehydrogenase is the key enzyme which catalyzes first step of pentose phosphate metabolic pathway. The deficiency of G6PD deficiency may result in hemolytic anemia due to drug toxication, infections during the neonatal period, consumption of beans and stress conditions. Reported that if exposed to these conditions, while some case has been affected, some of which has not been affected. In order to clarify this situation G6PD enzyme kinetics were studied from cases G6PD activity below the reference values. The aim of this study was to evaluate the relationship between G6PD gene expression and G6PD enzyme kinetics parameters and genotype. MATERIALS and METHODS: Ten cases (7 male and 3 female) of low or null G6PD enzyme activity were enrolled in this study. Enzyme activity was determined with the Beutler method. G6PD was partially purified DE-52 anion exchange resin and then enzyme kinetics were studied. G6PD Mediterranean mutation was genotyped by sequencing analysis and MboII restriction enzyme. G6PD gene expression levels were analyzed by using the 2-ΔΔCt formula. Variables were evaluated by correlation test. RESULTS: In this study G6PD Mediterranean mutation were identified in 4 cases two of hemizygote and two of heterozygot. We evaluated relationship of G6PD gene expression with other variables. CONCLUSIONS: There was statistically significant high positive correlation with G6PD gene expression levels and KmNADP, statistically significant moderate positive correlation with G6PD gene expression levels and KmG6P. This case is suggested to have different specifications in the substrate binding site as a result of post-translational or post-transcriptional modifications. Keywords: Glucose-6-phosphate Dehydrogenase, Gene Expression, Enzyme Kinetic

OP-124
ESTIMATION OF FUNCTIONAL SNPS IN APH1B GENE BY USING COMPUTER BASED SOFTWARE TOOLS

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OBJECTIVES: Amyloid beta peptide produced by gamma secretase complex is known to be one of the reasons of Alzheimer's disease. The APH1B gene encodes a component of the gamma secretase complex which is effective in the formation of the disease. The aim of this study is to identify single nucleotide polymorphisms (SNPs) in the APH1B gene and to predict SNPs which have damaging effects on the structure and function of the protein by computer-based software tools. MATERIALS and METHODS: SNPs in the APH1B gene were obtained from the NCBI dbSNP database in June-July, 2018. The functional effects of these SNPs which known to cause amino acid substitutions are predicted using SIFT (Sorting Intolerant From Tolerant) and PolyPhen-2 software tools. I-Mutant 2.0 software tool was used to determine the effect of damaging SNPs on the protein stabilization and Project HOPE software tool were used to construct three-dimensional models. RESULTS: 216 missense SNPs were found in APH1B gene. 24 SNPs were determined to be damaging by both SIFT and PolyPhen-2 software tools. I-Mutant 2.0 results showed that 19 SNPs decreased and 5 SNPs increased the protein stabilization. Three-dimensional modelling was not obtained from the databases of Project HOPE software due to the lack of structural information of the protein. CONCLUSIONS: The results of the study showed that 24 SNPs in APH1B gene had deleterious effects on the protein structure and stabilization by in silico methods. It is envisaged that the results obtained will provide data for further experimental analysis. Keywords: APH1B, Alzheimer's Disease, single nucleotide polymorphism (SNP), In silico

OP-125
INVESTIGATION OF VASPIN, VISFATIN, CHEMERIN AND IL-18 LEVELS IN PATIENTS WITH MIGRAINE

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OBJECTIVES: Migraine is a type of primary headache which is caused by the alterations in trigeminovascular system. Migraine attacks are associated with neurovascular inflammation of the cerebral and extracerebral vessels, but its pathophysiological mechanisms have not still been fully delineated. Also, migraine has been found to be associated with higher risks for various metabolic disorders. Thus, we aimed to investigate the matrix metalloproteinases (MMP), fetuin-A, ghrelin, and omentin levels which have important roles in metabolic disorders and inflammation, and to examine their relationship with migraine subtypes and attack frequency. MATERIALS and METHODS: 100 migraine patients and 50 age- and sex-matched healthy control subjects were enrolled. Migraine diagnosis was confirmed according to the International Classification of Headache Disorders-II diagnostic criteria. Analyses of Vaspin, visfatin, chemerin and İL-18 RESULTS: Vaspin, visfatin, chemerin and İL-18 levels were significantly increased in migraine than controls ($p<0.05$). In migraine patients, serum vaspin, visfatin levels were positively correlated with Vaspin, visfatin, chemerin ve İL-18 levels did not correlate with age, disease duration, or frequency of migraine headache ($p > 0.05$). CONCLUSIONS: Vaspin, visfatin, chemerin and İL-18 levels were significantly higher in migraine than controls ($p < 0.05$). Migraine patients have high vaspin, visfatin, chemerin and İL-18 levels levels, which may be related to the pathogenesis of migraine. The importance and impact of our findings on the pathogenesis, characteristics, and treatment of migraine needs to be investigated in further detailed studies. Keywords: vaspin, visfatin, il 18, chemerin, migraine,

OP-126
INVESTIGATION OF COPEPTIN/GHRELIN LEVELS IN INDIVIDUALS WITH RESPIRATORY DISEASES

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OBJECTIVES: Respiratory disease is a common disease that increases in certain periods. Significant increases have been observed in chronic respiratory diseases such as chronic obstructive pulmonary disease (COPD), asthma and bronchitis, especially in seasonal migrations. In these patients, there is evidence of systemic inflammation, measured by increased circulating cytokine, chemokine and acute phase proteins, or abnormalities of circulating cells, particularly when the disease is severe and during exacerbations. Studies have shown that serum copeptin and ghrelin levels are associated with prognosis in many diseases. Therefore, in this study, it was aimed to evaluate the levels of copeptin and ghrelin in the prognosis of patients with respiratory disease (asthma and COPD). MATERIALS and METHODS: Materials used in the study were obtained with serum samples taken for clinical diagnosis during routine investigations without any additional intervention, and to be discarded after routine work.. According to the power analysis, a minimum 40 (COPD: 20, asthma: 20) were determined and a control group was established with 20 healthy individuals. Copeptin and Ghrelin levels were determined by ELISA method. RESULTS: It was found that serum copeptin and gheralin levels of respiratory tract patients (STP) were significantly increased compared to healthy subjects. However, copeptin and ghrelin levels of COPD patients were found to be higher than those of asthmatic patients. CONCLUSIONS: The frequency of regional respiratory diseases was determined according to our results and the parameters of copeptin and ghrelin were analyzed in order to better manage the prognosis. In addition, the obtained data contributed to the epidemiological data of our country.
Keywords: Respiratory Diseases, Copeptin, Ghrelin

OP-127
THE EFFECTS OF DIET AND EXERCISE TREATMENT IN IRISIN, ADIPONECTIN, INTERLEUKIN-6 LEVELS IN OBESES

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OBJECTIVES: In this study, we aimed to investigate the effects of diet and exercise therapy on iris, adiponectin and IL-6 levels in obese subjects. MATERIALS and METHODS: 37 patients who applied for Eskişehir Private Fora Physical Therapy and Rehabilitation Center between 01.11.2017-30.05.2018 were included in the study. Patients were divided into 3 groups according to body mass index (BMI) and diet and exercise therapy were applied for 8 weeks. Adiponectin, IL-6 serum levels and irisin plasma levels were measured by enzyme-linked immunosorbent assay (ELISA) in Eskisehir Osmangazi University Clinical Biochemistry Laboratory Anthropometric characteristics of 37 individuals participating in the study were recorded. All values were evaluated before and after treatment RESULTS: As a result of 8-week diet and exercise treatment, body weight decreased by 4%. There was a statistically significant difference between IL-6 levels and adiponectin levels measured at the beginning of the study and the values measured at the end of the 8-week diet and exercise treatment respectively($p<0.05$), ($p<0.01$). However there wasn't a statistically significant difference in the measured IL-6 and adiponectin values between the groups separated according to BMI values ($p> 0.05$). There wasn't statistically significant difference between the beginning of the study and the measured values of irisin at the end of the 8-week diet and exercise treatment ($p> 0.05$). CONCLUSIONS: IL-6 and adiponectin, which play a role in obesity metabolism, showed statistically significant changes with 8-week diet and exercise treatment. The irisin, which is thought to increase the level with exercise, didn't show a statistically significant change in our study.
Keywords: obesity, irisin, adiponectin, interleukin-6

Introduction
The World Health Organization (WHO) defines obesity as abnormal and excessive fat accumulation in the adipose tissue that will impair human health [1]. Adipose tissue is an energy store and actively acts as an endocrine organ [2-3]. Adipose tissue is considered to be an endocrine organ because of the secretion of many substances from adipose tissue such as leptin, resistin, tumor necrosis factor-a(TNF-a), adiponectin, interleukin-6 (IL-6) [4].
Adiponectin
Adiponectin is an antidiabetic and antiatherogenic adipokine that is secreted from adipose tissue [5-6]. Adiponectin improves insulin sensitivity, glucose tolerance and lipid profile. It shows the beneficial effect on the metabolism by reducing atherosclerosis and inflammation [7]. Exercise can improve insulin resistance and reduce the risk of cardiovascular disease by increasing adiponectin levels as well as a range of benefits [8]. Dietary measures such as dietary calorie restriction or fat reduction have been shown to increase serum adiponectin levels [9].
Interleukin-6
Interleukin IL-6 is a cytokine that is involved in obesity and insulin resistance and is secreted by many cells as well as adipocytes and adipose stromal cells [10-11]. Subcutaneous adipose tissue has been shown to secrete IL-6, and this secretion is proportional to BMI. With the increase in body mass index, the release of inflammation mediators increases and this silent inflammation causes undesirable consequences of obesity [12].
Irisin
In 2012, Boström et al. discovered a protein that, when exercised systematically, protects the person from metabolic diseases and released from the skeletal muscle after exercise. This protein is the protein of irisin [13]. Irisin is released by exercise and cold and causes UCP1 increase in white adipose tissue cell. When UCP1 pumps increase in mitochondria of white adipose tissue cells, these cells are called beige fat tissue. These cells work like brown fatty tissue cells and provide thermogenesis [14]. Increased expression of UCP1 enhances heat production, so it is a lucrative event that increases energy expenditure in individuals with insulin resistance and in obese patients [15]. Although there are studies showing that the release of irisin is increased by exercise, there are still question marks on the regulation of irisin in human skeletal muscles [16].
The aim of this study was to investigate the effects of 8-week diet and exercise therapy on plasma irisin, serum adiponectin, serum interleukin-6 and HOMA-IR values.
Material and Methods
Subjects and study protocol
The study included 37 female patients aged between 25-65 years who applied to Eskişehir Fora Physiotherapy and Rehabilitation Center for obesity treatment between 01.10.2017 and 30.04.2018. The participants were given a 'Volunteer Information Form' before the study and written approval was obtained from the volunteers. Individuals who have undergone cancer treatment or who have previously had cancer, those with any kidney disease, those with Type 1 or Type 2 diabetes, and those with severe cardiovascular disease are excluded from the study.
Three experimental groups were formed according to the BMI, each group consisting of 13 people. All 3 groups were given 8-week diet and exercise therapy.
Group 1 (Control) (n = 13): Individuals with a body mass index of $18.5 \leq BMI \leq 29.99$ kg / m² (normal or slightly overweight)
Group 2 (n = 11): Individuals with a body mass index of $30 \leq BMI \leq 34,99$ kg / m² (grade I obese)
Group 3 (n = 13): Individuals whose body mass index is between $35 \leq BMI \leq 39,99$ kg / m² (grade II obese)
Patients were examined by an internal diseases specialist and the patients eligible for the study were identified. Patients were then examined by a physical medicine and rehabilitation specialist to determine the physical competence of the patients and to plan the exercise program. The diet programs of the patients were arranged by the dietitian individually and nutrition training was provided to the patients.
Patients who did not participate in exercise therapy more than 2 times were excluded from the study. Similarly, daily food consumption records were recorded. Individuals who did not diet were also excluded.
Biochemical Analysis
After 12- 14 hours fasting, 2 ml blood samples from antecubital veins of participants were taken to EDTA tubes and 5 ml blood samples were taken into biochemistry tubes. Blood samples taken into EDTA tubes were centrifuged at 1000 rpm for 15 minutes with NF400 model centrifuge to obtain plasma samples. Blood samples were taken from biochemistry tubes by centrifugation at 4000 rpm with NF400 centrifugal device for 5 minutes to obtain serum samples.
Fasting blood glucose and fasting insulin levels were measured with Rosche COBAS C501 autoanalyzer in Eskisehir Osmangazi University Clinical Biochemistry Laboratory and a Homeostasis Model Assessment (HOMA) was used to evaluate insulin resistance [17]. Serum adiponectin and interleukin-6 levels and plasma irisin levels were determined by enzyme-linked immunosorbent assay (ELISA). All values were evaluated before and after treatment.
Serum adiponectin measurement: Adiponectin measurement in serum was measured by the Cloud-Clone Corp. human adiponectin Elisa kit. Results were given in µg/ml.
Serum interleukin-6 measurement: IL-6 measurement in serum was measured by the Dia-source human adiponectin Elisa kit. Results were given in pg/ml.
Plasma irisin measurement: Irisin measurement in plasma was measured by the BioVendor human adiponectin Elisa kit. Results were given in ng/ml.
Anthropometric Measurements
Height (cm), body weight (kg), BMI, body fat content, fat-free mass (%), body water body (%), basal metabolic rate (BMR) (kcal), waist - hip circumference (cm) at the beginning and end of the study. The body composition of the individuals was analyzed by the TANITA BC-418 device.
Statistical Analysis
Continuous data are expressed as mean ± standard deviation, and categorical data as percentage (%).The Shapiro Wilk test was used to investigate the appropriateness of data to normal distribution. Two-way repetitive measurements for repeated measurements ANOVA (One Factor Repetitive) "Two-way reapeated mesasures ANOVA (One Factor Repetition)" test was used.
Spearman correlation coefficients were calculated for variables that did not conform to normal distribution. IBM SPSS Statistics 21.0 (IBM Corp. Released 2013. IBM SPSS Statistics for Windows, Version 22.0. Armonk, NY: IBM Corp.) package was used in the implementation of the analyzes. P value of <0.05 was considered as a criterion for statistical significance.

Result

The mean age of the participants was 47,91 ± 13,16. The median values of the variables examined in the study, the differences between the pre-treatment and post-treatment and the differences between the groups are expressed in Table 1 and Table 2.

Table 1. Differences in physical parameters before and after obesity treatment and comparison between groups

		Experimental Groups				
Physical Parameters		Group 1 (n=13)	Group 2 (n=11)	Group 3 (n=13)	Total (n=37)	P values
Fasting glucose, mg/dL	Pre - T	84,84± 8,07	92,63± 16,12	94,92 ± 10,25	90,70±12,20	0.03
	Post-T	80,76 ±6,45	84,00 ± 12,88	96,53 ± 14,65	87,27±13,45	
	p	0.11	0.00	0.5	0.03	-
Fasting insüline	Pre - T	10,72 ± 4,19	13,36 ± 6,78	15,17 ± 6,72	35,47±10,26	0.30
mg/dL	Post-T	6,62 ± 2,98	8,55 ± 4,82	13,26 ± 6,93	32,55±9,53	
	p	0.00	0.00	0.14	0.00	-
HOMA-IR	Pre - T	2,29 ± 1,05	3,10 ± 1,75	3,58 ± 1,84	2,98±1,63	0.15
	Post-T	1,32 ± 0,63	1,82 ± 1,17	3,25 ± 2.07	2,15±1,63	
	p	0.00	0.00	0.29	0.00	-
Adiponectin	Pre - T	11,48 ± 2,25	8,93 ± 1,86	6,04 ± 2,14	8,81 ± 3,08	0.69
(µg/ml)	Post-T	12,21± 1,86	9,94 ± 1,85	7,26 ± 2,27	9,80 ± 2,87	
	p	0.00	0.00	0.00	0.00	-
IL-6	Pre - T	8,48 ± 4,47	12,48± 5,13	13,49± 6,41	11,43 ±5,66	0.99
(pg/ml)	Post-T	10,85 ± 5,86	14,91 ± 5,11	15,65 ± 10,63	13,74 ± 7,82	
	p	0.16	0.19	0.20	0.02	-
Irisin	Pre - T	8,83 ± 3,15	12,18 ± 5,43	15,62 ± 8,11	12,21±6,46	0.75
(ng/ml)	Post-T	9,50 ± 3,99	12,45± 5,69	16,73± 9,56	12,92±7,37	
	p	0.38	0.74	0.15	0.13	-

BMR : Basal metabolic rate
Pre-T : Pre-treatment
Post-T : Post- Treatment

Table 2. Differences in biochemical parameters before and after obesity treatment and comparison between groups

		Experimental Groups				
Physical Parameters		Group 1 (n=13)	Group 2 (n=11)	Group 3 (n=13)	Total (n=37)	P values
Body weight(kg)	Pre - T	70,66±7,16	86,08 ± 8,80	97,52 ± 10,32	84,68±14,32	0.04
	Post-T	67,62 ± 6,41	81,88 ± 8,07	93,64 ± 10,10	81,00±13,72	
	p	0.00	0.00	0.00	0.00	-
Fat Mass(kg)	Pre - T	25,34 ± 4,88	36,41 ± 7,35	44,80 ± 6,39	35,47±10,26	0.02
	Post-T	23,60 ± 4,25	33,24 ± 6,82	40,92 ± 7,28	32,55±9,53	
	p	0.00*	0.00	0.00	0.00	-
Waist circumference (cm)	Pre - T	91,23±5,52	100,63 ± 7,07	112,84 ± 6,30	101,62 ± 11,05	0.23
	Post-T	87,23 ±5,27	95,00± 6,04	108,38 ± 6,35	96,97 ± 10,74	
	p	0.00	0.00**	0.00	0.00	
Hip circumference (cm)	Pre - T	107,30 ± 6,39	115,81 ± 4,30	126,23 ± 7,79	116,48 ±10,18	0.21
	Post-T	104,00 ± 5,44	111,45± 3,95	123,15 ± 8,16	112,94 ± 10,18	
	p	0.00	0.00	0.00	0.00	-
Waist/Hip ratio(cm)	Pre - T	0,85 ± 0,05	0,85 ± 0,06	0,85 ± 0,07	0,87±0,5	0.80
	Post-T	0,84 ± 0,05	0,84 ± 0,06	0,84 ± 0,07	0,85±0,6	
	p	0.05	0.06	0.07	0.00	-
BMR(kcal)	Pre - T	0,85 ± 0,06	0,85 ± 0,07	0,85 ± 0,08	1519,35±175,68	0.86
	Post-T	0,84 ± 0,06	0,84 ± 0,07	0,84 ± 0,08	1485,4±173,33	
	p	0.01	0.00	0.03	0.00	-

Pre-T : Pre-treatment
Post-T : Post- treatment

As a result of 8-week diet and exercise treatment, body weight decreased by 4%. There was a statistically significant difference between IL-6 levels and adiponectin levels measured at the beginning of the study and the values measured at the end of the 8-week diet and exercise treatment respectively ($p<0.05$), ($p<0.01$). However there wasn't a statistically significant difference in the measured IL-6 and adiponectin values between the groups separated according to BMI values ($p> 0.05$). There wasn't statistically significant difference between the beginning of the study and the measured values of irisin at the end of the 8-week diet and exercise treatment ($p> 0.05$).

Discussion

In recent years, fat tissue has been shown to actively affect insulin sensitivity by secreting various adipocytokines. In many independent studies, increased IL-6 and decreased adiponectin have been shown to play a role in the development of insulin resistance, obesity and type 2 diabetes in humans [18]. While many studies showed that exercise could significantly alter adiponectin levels [19-21], other studies did not support these results [22-24].

Although an earlier study showed that at least 10% weight loss was needed to increase serum adiponectin levels [25], we found that 8-week diet and exercise therapy decreased the insulin resistance and increased adiponectin levels in our study.

IL-6 production with human adipose tissue increases with obesity [26]. Bastard et al. showed that IL-6 levels decrease in serum and adipose tissue after weight loss in obese women [27]. However, there was a statistically significant decrease in the IL-6 levels measured at the beginning of our study and the values measured at the end of the 8-week diet and exercise therapy. The increase in IL-6 levels despite weight loss may be due to the fact that individuals are given exercise in addition to diet therapy. The circulating levels of IL-6 are very low at a healthy rest, but levels increase rapidly during exercise in both humans and mice. This is mainly due to increased IL-6 production by operating the skeletal muscle [28]. Ikeda et al. found that increased IL-6 after exercise increased GLUT4 expression in muscle. As a result, the increase of IL-6 in skeletal muscle may play a role in increasing insulin sensitivity [29].

Recent studies in mice and humans have demonstrated that enhancing brown fat thermogenesis may lead to improved glucose tolerance, increased insulin sensitivity, lower body weight, and decreased fat mass [30-31]. Irisin is a protein that activates thermogenesis in brown fat tissue [13]. Although there are studies showing that plasma levels of irisin increase as a result of exercise, there are still contradictions in the regulation of irisin in human skeletal muscles [32]. In our study, the levels of irisin did not change significantly as a result of diet and exercise therapy.

As a result, even 8 weeks of diet and exercise therapy has changed the levels of adiponectin and IL-6, which play an important role in the obesity metabolism. However, there is no difference in response to treatment between all 3 groups. In our study, diet and exercise therapy were applied together. Further studies are needed to determine whether the release of irisin may be affected by diet or exercise.

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Ethical Considerations: This study was approved by the Clinical Research Committee of the Eskişehir Osmangazi University (Project No:2017-1776).

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OP-128
RELATIONSHIP BETWEEN ALBUMINURIA LEVELS AND PAF-AH E IN PATIENTS WITH DIABETIC NEPHROPATHY

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OBJECTIVES: We aimed to assess the association of PAF-AH with renal function and metabolic parameters in patients with DN that we have classified according to albuminuria(alb) levels and with diabetic patients without nephropathy.We also aimed to apply the PAF-AH activity measurement method to automated chemistry analyzer and determine basic performance characteristics of the method. MATERIALS and METHODS: 67 DN patients and 41 non-nephropathy diabetic patients were included in the study.DN patients were assigned to 3 groups according to their alb/creatinine levels;Group1(<30),Group 2(30-300) and Group3 (> 300).The mean age of the DN and diabetes groups were Group1 65,Group2 57.2,Group3 61.5, and controls 55,respectively.PAF-AH activity as well as cholesterol, HDL-K,LDL-K,eGFR,folic acid,HOMA-IR,B12,Ca,P,hom ocysteine,fibrinogen,urea,uric acid,creatinine,ALT,AST,APO B,mg,TG levels were determined in patient sera, and vit.B12, urine,protein,creatinine and alb levels in patient urines.PAF-AH activity was determined by kinetic reading at 412 nm of the discoloration of free thiols formed by hydrolysis of the substrate 2-thiol PAF with DTNB.The method was applied to the Roche Cobas c501 analyzer RESULTS: No significant difference was found in the study between the PAF-AH activities of DN and control groups(p> 0.05).There was a strong correlation between PAF-AH activity and atherogenic parameters such as cholesterol,LDL -K and Apo B: Group1,(cholesterol r = 0.700,p =0.002;LDL-K r = 0.760,p=0.001;APO B r=0.874,p=0.001)Group 2,(LDL-K r=0.738,p=0.001;APO B r=0.785,p=0.001).Apo B showed a positive correlation with PAF-AH when all study groups were combined(r=0.593,p= 0.001)).In group3,there was a moderate correlation between PAF-AH activity and creatinine(r =0.439,p =0.015). CONCLUSIONS: Findings in our study have shown that PAF-AH activity in patients with DN is higher than diabetic patients. The increased PAF-AH activity may be interpreted as an increased risk of plac rupture. However, this risk is independent from the albuminuria or proteinuria level. Keywords: Platelet activating factor – Acetyl hydrolase, diabetes, nephropathy, renal function

OP-129
TRANSFORMATION OF WHITE ADIPOSE TISSUE TO BROWN ADIPOSE TISSUE: IRISIN AND ITS METABOLIC EFFECTS

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OBJECTIVES: Irisin is a thermogenic protein that reduces the production of ATP over the UCP protein by turning white adipose tissue to brown adipose tissue and has been considered as an alternative for the treatment of diseases such as obesity, Type II diabetes. This study was aimed to measure circulating irisin levels after 4 weeks of exercise and to evaluate relationships between irisin levels and many biochemical/metabolic parameters. MATERIALS and METHODS: 30 elite boxers were randomly divided into 3 groups and different exercise programs were applied. Serum irisin, glucose, insulin levels and hemogram parameters were measured in venous blood samples taken from boxers at the end of 1st week, 2nd week, 3rd week and 4th week. Serum irisin levels were measured by ELISA method using commercial kit RESULTS: Serum irisin levels were 4.03±2,86 ng/ml at the beginning of the study, 4.13±2.67 ng/ml at the end of the first week, 4.67±3.76 ng/ml at the end of the second week, 47.26±54.73 ng/ml at the end of the third week and 47.49±54.21 ng/ml at the end of the fourth week following exercise. The increment of serum irisin levels was statistically significant CONCLUSIONS: Considering the changes in serum irisin levels and other biochemical parameters, it was observed that 3 weeks of regular exercise showed positive effects on metabolism. Further studies are needed to evaluate the use of irisin, a promising compound discovered recently, in the treatment of many diseases, especially cancer. We intend to continue our researchs on irisin with further studies to investigate mRNA expression of the FNDC5 protein Keywords: irisin, exercise, brown adipose tissue

OP-130
SERUM HYALURONIDASE ACTIVITY IN PATIENTS WITH BLADDER CANCER

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OBJECTIVES: Bladder cancer (BC) is the most common malignancy of the urinary system. Hyaluronidase (HYAL) degrades hyaluronic acid (HA), one of the structural components of the extracellular matrix. Our aim is to investigate the relationship between BC and HYAL activity and to evaluate the clinical and analytical performance of serum HYAL activity measurement method. MATERIALS and METHODS: Our study consisted 43 BC patients and 43 control groups with the same symptoms but without BC. After the removal of outliers of the age data of the groups, remained 39 BC patients and 38 control patients in the study. The association between BC and prognostic parameters was obtained from 43 BC patient data. All parameters were compared between age- and sex matched MK and control groups. HYAL activity was measured by Morgan-Elson colorimetric method. In this method, HA is degraded with HYAL, chromogen 1 and 2 are formed. Addition of dimethylamino benzaldehyde solution was allowed to form chromogen 3. The resulting color change was measured spectrophotometrically at 585 nm. RESULTS: Serum HYAL activity in BC patients was found to be significantly higher than control group ($p < 0.05$). Serum HYAL activity was found to be significantly increased proportionally with the clinical and / or pathological stage of BC ($p < 0.05$). Serum HYAL activity was significantly higher in smokers than non-smokers ($p < 0.05$). When we combined the patient and control groups ($n = 86$), serum HYAL activity was no significant difference in participants younger than 55 years old than those older than 55 years old ($p > 0.05$). CONCLUSIONS: The clinical performance of the method may be useful in the evaluation of BC patients. The method is also sufficient in terms of analytical performance caharacteristics. Keywords: Hyaluronic acid, Hyaluronidase, Bladder cancer

OP-131
INFLAMMATORY RESPONSE EVALUATION OF SLEEP APNEA

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OBJECTIVES: Obstructive sleep apnea syndrome (OSAS), a disease characterized by recurrent obstructions of the upper airway during sleep, is one of the common health problems in the community. In this study, AHI (Apnea Hypopnea Index) values and C-reactive protein (CRP) levels were compared to show that the inflammatory response in obstructive sleep apnea syndrome is more intense in the REM and NREM sleep phases. MATERIALS and METHODS: Between 25 April and 20 July 2018, 100 volunteer patients (74 males, 26 females) who were diagnosed as OSAS in the Sleep Laboratory of Muğla Sıtkı Koçman University were included in the study. CRP levels were studied by immunoturbidimetric method and correlated with Total AHI, REM AHI and NREM AHI values. RESULTS: The mean CRP value was 3.545±3.82 mg/L, Total AHI was 38.45±27.21, REM AHI was 39.64±27.31, and NREM AHI was 37.65±28.95. Positive correlation between REM AHI and CRP levels (r=0.332) was statistically significant ($p<0.05$). CONCLUSIONS: Apnea and hypopnea occurring during REM sleep period cause more hypoxia and accompanying inflammatory response compared to NREM. Because REM sleep duration covers a smaller proportion of total sleep duration, lower AHI scores are obtained in REM-associated OSAS patients. In our study, there was no correlation between CRP levels and total AHI values, but statistically significant correlation between CRP and REM AHI values was found. Since the effects of REM and NREM sleep periods are different, it is very important to follow apnea evaluation according to sleep stages as well as apnea during the whole sleep period and to plan treatment accordingly.
Keywords: Sleep apnea, inflammation, C-reactive protein

OP-132
ZINC ANALYSIS IN MULTIPL SKLEROSIS (MS) PATIENTS: KONYA EXAMPLES

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OBJECTIVES: Multiple sclerosis (MS) is an autoimmune disease characterized by inflammation and demyelination in many parts of the central nervous system (CNS), which usually begins in young adulthood. A wide variety of studies on MS etiology, pathogenesis and treatment are ongoing. In this study, it was investigated that decreased zinc levels may increase the susceptibility to immune system disorders in MS and alter the activity of the disease. MATERIALS and METHODS: The study was carried out in N.E.Ü Meram Medical Faculty Hospital. The study consisted of 20 individuals with MS findings and 20 healthy controls with radiological findings. Zinc study was carried out in Atomic Absorption Spectrophotometer. T-test was applied in the statistical analysis of the results. RESULTS: As a result of the study, the zinc levels of MS patients were found to be 9.33 ± 1.13 and the zinc average of healthy controls was found to be 11.63 ± 1.01. The mean age of MSI individuals is 34.1 and the healthy controls are 33.5. The age at onset of MS patients is between 20-30% in 48% of cases. The number of patients with MS was 17 (85%) and the male ratio was 3 (15%). CONCLUSIONS: It has been observed that zinc deficiency in MS patients with autoimmune disease is lower than normal values. Zinc, which is very important for increasing the immunity of the immune system, may be followed in nutritional and food supplements in MS patients by strengthening the immune systems of natural persons with MS and decreasing the effect of the disease.
Keywords: zinc, multiple sclerosis, the immune system

OP-133
CIRCULATING OF MIRNA-521 AND OXIDANT/ANTIOXIDANT STATUS AFTER RADIATION IN PROSTATE CANCER

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OBJECTIVES: Radiotherapy is a therapeutic strategy in the prostate cancer (PCa). As some tumor cells can be radio-resistant, tumors may relapse and metastases. After radiotherapy some genes in cancer cells are effected directly from radiation. MicroRNAs (miRNAs) are the molecules which regulate gene expression related with tumorigenesis, metastatic progression and therapeutic responses. In recent studies, the roles of miRNAs in radiation response in prostate cancer cell lines have been investigated. However, the roles of miRNA, and its integration into the radiation signaling pathways are largely unknown. Our aim was to investigate expression levels of miR-521, total antioxidant status (TAS), which is a marker of all of the antioxidants, and 8-hydroxy-2'-deoxyguanosine (8-OHdG) levels, which is a marker of DNA oxidative damage, in patients with PCa, before, after radiation therapy. MATERIALS and METHODS: 30 patients who admitted to Radiation Oncology Department for PCa radiotherapy were included in study. Blood samples for the miRNA were obtained before and after initiation of radiotherapy. miR-521 expressions were analyzed by using quantitative reverse-transcription polymerase chain reaction.. TAS and 8-OHdG were measured by ELISA. RESULTS: We found that miR-521 expression levels increased in the group after radiotherapy. 8-OHdG levels were found to be higher in the after radiotherapy patients group when compared to before radiotherapy patient group. Additionally, no significant differences were found between the groups as TAS levels were taken into consideration. CONCLUSIONS: Expression of miRNAs, such as miR-521 effected by radiation therapy in patient with PCa showing that they might be related with treatment efficacy of radiotherapy of the cancer patients.
Keywords: Prostat Cancer, miR-521, TAS, 8-OH dG

OP-134
EVALUATION OF ANALYTICAL PERFORMANCE IN CLINICAL CHEMISTRY LABORATORY VIA MEASUREMENT UNCERTAINTY

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OBJECTIVES: Measurement uncertainty is a quantitative indicator of the quality of the result produced in a laboratory. We aimed to compare the values obtained by the measurement uncertainty of twenty two parameters from two different devices of the same brand and model used in the laboratory calculated by using the internal and external quality control results for the biochemistry with the total allowable error (%TEa) values of CLIA. MATERIALS and METHODS: Our laboratory's external quality control data for the years 2016, 2017 and 2018 and internal quality control data for the year 2018 were analyzed retrospectively. Two Beckman Coulter AU5800 (Beckman Coulter, Mishima, Japan) autoanalyzers were used in this study. In the calculation of measurement uncertainty, the 6-step model described in the Nordest manual was used. RESULTS: The measurement uncertainty values of Sodium and Chloride tests obtained from both autoanalyzers were found to be higher than the %TEa values. The measurement uncertainty values calculated for Albumin, ALP, AST, ALT, Amylase, Calcium, Total Cholesterol, CK, Creatinine, Iron, Glucose, HDL-Cholesterol, Potassium, LDH, Magnesium, Total Bilirubin, Triglycerides, Uric Acid, Blood Urea Nitrogen from both autoanalyzers were within the limits of CLIA. CONCLUSIONS: Measurement uncertainty is a good evaluation model for the analytical performance of clinical laboratories. However, each laboratory should determine which of the analytical error calculation models to use according to its own dynamics. The analytical difference between autoanalyzers must be monitored and minimized. Also in the patient outcomet format, test and device specific measurement uncertainty values must be declared.
Keywords: Analytical performance, measurement uncertainty, total allowable error, CLIA

OP-135
A DISCUSSION STUDY FOR LABORATORY PROCESS EDUCATION DEMANDS AND NEEDS OF OUR TECHNICIANS

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OBJECTIVES: Laboratory technicians have a role in the continuous functioning of preanalytical, analytical and postanalytical phases.
Sample acceptance, rejection, the correct description of the sample, proper management, storage, true preparation of analytical instruments, the meaning of the tests in the post analytical process, panic values, interfering substances.
it is necessary for good laboratory practices that all laboratory staff have adequate knowledge in the matter of correct pre-approval of results.
Our technicians have theoretical information requests.It is planned to conduct a survey with the aim of analyzing the needs and determining the training programs. MATERIALS and METHODS: 20 question and multiple choice options were created, reflect about the most common preanalytical and analytical issues. The questionnaire has been directed into 36 laboratory technicians in İKÇÜ Atatürk Education and Research hospital.

General statements were related to sample quality, correctly samples collecting, blood-taking errors
sample storage conditions, frequent preanalytical errors. Specific questions were related to impact of hemolysis interferences, relation of hematocrit with hemoglobin, calculated biochemical tests, markers, laboratory tests that require urgent work.
RESULTS: Since 70% of the respondents do not know the concept of full clot retraction, the blood is centrifuged early and fibrin formation in the serum continues. It was not known by the 50% participants that calcium and potassium could be affected in EDTA-induced calorie.
CONCLUSIONS: It is necessary to education to all laboratory technicians.
In the course of our work, laboratory quality studies and the effect of training would be evaluated by indicators.as sample rejection rate, time to yield, accurate sample storage etc.
Keywords: laboratory education, survey study, good laboratory practices

OP-136
INVESTIGATION OF THE READABILITY OF NOTIFICATION TEXTS OF THE DOUBLE TEST IN THE INTERNET

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OBJECTIVES: The first trimester screening test, also known as the double test or the 11-14 test, is a test to detect infants with chromosomal anomalies. Internet is a resource that patients often use in order to better understand medical procedures. With this study, it is aimed to determine the readability levels of web sites. MATERIALS and METHODS: A total of 200 web sites were reached by the web search engine Google using the keywords such as 'double test', '11 -14 week test'. Sites with less information than ten sentences, chat, forum and commercial blog sites were excluded from the study. The average readability level was analyzed using Ateşman and Bezirci-Yilmaz readability formulas. RESULTS: Following the application of the exclusion criteria, 48 web sites were eligible for evaluation. Of these, 62,5% were private clinics, 18,5% were private hospitals and 8,3% were private laboratory sites. The readability of the web sites was moderate to severe according to the Atesman formula, and it was very difficult according to the Bezirci-Yilmaz formula. Most of the texts contained information about the definition of the double test. However, in these texts, it has been seen that there is not enough mention of the interpretation of the double test results. CONCLUSIONS: It has been determined that the readability level of informative texts related to double test on web sites was low. It has been concluded that the cooperation of the effective biochemical societies and health care institutions is necessary for the revision of existing information texts.
Keywords: DoubleTest, Readibility, Understandability

OP-137
EVALUATION OF ANTAGONISTIC AND SINERGISTIC PAIR-WISE ANTIBIOTIC DRUG INTERACTIONS

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OBJECTIVES: Antibiotic resistance in pathogenic bacteria is a major health problem. The long-term efforts of the emergence of new antibiotics and of treatment methods make this problem more difficult to be solved in the near future. Clinicians currently use combinatorial antibiotics as the most effective method of treatment. However, antibiotics can show synergistic interactions when used together, as well as antagonistic interactions. For this reason, understanding of antibiotic interactions is important. In our study, it is aimed to investigate the interactions of antibiotics with different mechanisms of actions. MATERIALS and METHODS: Antibiotics, which act as protein synthesis inhibitor (PRO) and DNA synthesis inhibitor (DNA), were used in our study. 108 DNA-PRO, 30 DNA-DNA and 112 PRO-PRO drug pairs were tested on the Escherichia coli strain and the interactions of the pair-wise combinations of drugs were analyzed. The Loewe additivity model was used statistically and alpha scores were calculated. Drug interactions are categorized as synergistic and antagonistic. RESULTS: Accordingly, it has been found that combinations of protein synthesis inhibitors have showed more synergistic and stronger synergistic effects than combinations of DNA synthesis inhibitors and DNA synthesis-protein synthesis inhibitors. CONCLUSIONS: As a result of the study, The importance of the mechanisms of action of drugs is emphasized in the selection of synergistic drug combinations. It is likely that such studies on screening of pair-wise combinations of DNA synthesis and protein synthesis inhibitors will shed light on finding effective pairs in therapy.
Keywords: Antagonism, Antibiotic interactions, Synergy

OP-138
DETERMINATION OF PHYSIOLOGICAL IMPACTS OF HEAVY METALS IN DIFFERENT CROPS THROUGH HYDROPONIC STUDIES

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OBJECTIVES: Rapid population growth on earth increases the needs for the healthy food. However, so called development of the industrial activities and related sectors with increased traffic load and household wastes cause heavy metal (HM) accumulations in soil, air and waters dramatically. Increased HMs can easily transfer from original sources to other organisms via food chain and this begins with plants. As final scheme of this transportation can cause some serious health problems in humans, therefore we examined the HM effects on some of the most commonly consumed crop varieties. MATERIALS and METHODS: In this study, toxic effects of HMs on germination percentage, root and shoot length, water, pigment and MDA contents of wheat (Triticum aestivum cv. Bezostaja) and barley (Hordeum vulgare cv. Erginel) varieties were investigated through selected concentrations (0, 1.5, 3.0 mM) of PbCl2 and CdCl2 together with their combinations (PbCl2 + CdCl2). RESULTS: According to our results, application of HMs to plants caused differences in their physiological parameters by comparing to control groups. Except carotenoid and MDA contents, all other parameters decreased after HM treatments dramatically. Detailed observations have shown that, Erginel (barley) variety were found to be more tolerant to HM stress by comparing to Bezostaya (wheat). CONCLUSIONS: It is clear that, the initiation of oxidative stress in examined crop varieties were caused by the application of HMs. Consequently, to determine more tolerant species / varieties, onward studies should recruite different HM applications along with their range of concentrations on other most commonly cultivated crop species.
Keywords: Crops (Barley and Wheat), Germination, Heavy metals (Cd and Pb), MDA, Pigment

OP-139
PEROXIDASE-LIKE ACTIVITY OF MAGNETIC POROUS SILICA MICROSPHERES AND THEIR INTERACTION WITH DNA

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OBJECTIVES: This study was to test the peroxidase activity of the monodisperse-porous silica microspheres.The use of synthesized microspheres as a support material reveals a linear increase in peroxidase activity with increased concentration of genomic DNA.The results facilitate the development of a new diagnostic kit. MATERIALS and METHODS: The monodisperse-porous silica microspheres were 5 mm in size and with a coefficient of variation for size distribution less than 5%.The morphological investigation performed by SEM showed that the surface of microspheres was porous.The devleoped synthetic protocol of the magnetic silica microspheres allowed strong immobilization of magnetic Fe3O4 nanoparticles on the surface of the pore found within the microspheres.The presence of tightly immobilized Fe3O4 nanoparticles having an ability to interact with the enviroment should be probably the main reason of peroxidase-like activity of magnetic silica microspheres. RESULTS: In order to test the peroxidase-like activity of magnetic silica microspheres, tetramethylbenzidine (TMB) was used as the substrate.The effect of concentration of magnetic silica microspheres on the peroxidase-like activity was investigated in TE buffer medium using TMB as the synthetic substrate and a linear increase in the peroxidase-like activity with the increasing microsphere concentration.Besides, the effect of human genomic DNA concentration on the peroxidase-like activity of magnetic silica microspheres was investigated.The results showed that a linear increase occurred in the activity with the increasing DNA concentration. CONCLUSIONS: The results of presented study also allow the development of new diagnostic methods worked based on peroxidase-activity.The magnetic silica microspheres have a significant potential as support material for various biological molecules.Hence, the use of magnetic silica microspheres with this property instead of an expensive enzyme-peroxidase may provide serious advantages in the studies on the development of diagnostic test kits.
Keywords: peroxidase-like activity, microspheres, genomic DNA

OP-140
EVALUATION OF SUSPICIOUS POSITIVE HLA B27 RESULTS IN FLOW CYTOMETRY

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OBJECTIVES: We aimed to investigate how suspicious positive results obtained by flow cytometry turned out in the verification tests conducted in the genetic laboratory and to evaluate the reference range of the test.
MATERIALS and METHODS: In the Medical Biochemistry Laboratory

of Istanbul Training and Research Hospital, between January 27 th 2017 and October 16 th 2018, 1949 HLA B27 flow cytometry (Beckman Coulter Navios 10 Color 3/L) screening results were analyzed retrospectively. Seven suspected positive samples were sent to the genetic laboratory for verification and the results were compared.
RESULTS: Of the 1949 patients, 1747 were reported as negative, 30 as positive, and 172 as suspicious positive. It was observed that the suspicious positive results were positive for all of the samples directed to the genetic laboratory for verification by the clinician.
CONCLUSIONS: Genetic validation of all suspicious positive results was positive and it is suggested that recommended reference range for flow cytometry should be reviewed.
Keywords: HLA B27, flow cytometry, reference range

POSTER PRESENTATION ABSTRACTS

PP-001
THE EVALUATION OF ANALYTICAL PERFORMANCE OF BIOCHEMICAL TESTS USING SIX SIGMA METHODOLOGY

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OBJECTIVES:In clinical laboratories, sigma metric analysis is used to assess the performance of laboratory process system. The aim of this study was to evaluate the analytical process performances of the biochemistry tests in the Beckman Coulter-Olympus AU5800 by using the six-sigma methodology. MATERIALS and METHODS:The analytical performances of Beckman Coulter-Olympus AU5800 running 21 biochemical tests (Glucose, Urea, Creatinine, Total Bilirubin, D. Bilirubin, Total Protein, Albumin, Uric acid, SGOT, SGPT, LDH, GGT, T.Cholesterol, HDL, CK, Na, K, Cl, Ca, P and Mg) were evaluated. The six month internal(level1-2) and external quality control programs were extracted for these parameters. CV% was obtained from internal quality control programs. Percentage bias for these parameters was calculated from external quality control programs. Total allowable errors were followed as per CLIA guidelines. Sigma metrics were calculated from CV%, percentage bias and total allowable error for the above mentioned parameters. RESULTS:For parameters T.bilirubin, D.bilirubin, uric acid, SGOT, SGPT, ALP(level 2), CK, Mg, HDL and LDH, the sigma values were found to be more than 6. For parameters glucose, albumin(level2), ALP(level 1), Cl, T.Cholesterol, P, Na(level2) the sigma values were found to be between 3 to 6. The sigma values were found to be less than 3 for parameters total protein, albumin(level1), Na(level1) K, creatinine and urea. CONCLUSIONS:To improvement and monitoring of the analytical process performance clinical laboratory to provide continuous improving, sigma levels can be used. Analytes with the sigma value < 3 are required strict monitoring and modification in quality control procedure. Keywords: Six Sigma, Analytical Performance, Clinical Biochemistry

PP-002
THE ASSESSESMENT of ANALYTICAL PERFORMANCE of HbA1c ASSAY USING SIX-SIGMA METHODOLOGY

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OBJECTIVES:Sigma metric is a quality management strategy that provides an objective assessment of the current analytical quality of different examination procedures. The aim of this study was to evaluate the analytical process performances of the HbA1c assay in the analysis systems by using the six-sigma methodology. MATERIALS and METHODS:The Sigma metric was used for the evaluation of quality targets. The data obtained for the study are Internal Quality Control (IQC) - coefficient of variation (CV) percentage and External Quality Assurance Scheme (EQAS) - Bias% for HbA1c run on three Tosoh HLC-723G8 automated analyzer in the period from Januray to December 2017. A total allowable error (TEA=10%) from the Clinical Laboratory Improvement Amendmenta of 1988 (CLIA'88) were used to calculate the sigma level. RESULTS:The calculated CVs were 1.6%, 1.6%, 2.1% and the average bias during the study period were 1.44%, 1.29% and 1.27% for three analyzer, respectively. The calculated average sigma values were 5.35, 5.44 and 4.16 for three analyzer, respectively. CONCLUSIONS:The three Tosoh HLC-723G8 automated analyzer demonstrated sigma values between 3 and 6, classification as called "good". Laboratories involved in the long-term testing of HbA1c must improve the quality of their analytical testing to ensure clinically valid results. The Six-Sigma Methodology is a reliable method for the evaluation of analytical process performance. **Keywords:** Six sigma, HbA1c, Quality control

PP-007
ASSESSMENT OF BIOCHEMISTRY TESTS VIA PROCESS SIGMA RESULTS CALCULATED BY DIFFERENT TEa

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OBJECTIVES:Six sigma process analysis is widely used in evaluating laboratory test performances. In this study, it is aimed to compare the performance of some biochemical tests with six sigma process values calculated by using the Ministry of Health(Turkey) and CLIA total allowable error (TEa). MATERIALS and METHODS:This study was carried out in the Clinical Biochemistry Laboratory of Karadeniz Technical University in January-June 2018, in Beckman Coulter AU-5800 autoanalyzer, for total protein,albumin,ALP,ALT,AST,triglyceride, cholesterol,HDL-C,glucose,urea, creatinine,LDH,Na,K,Cl tests. Six sigma process levels were calculated using formula "(TEa-bias)/CV". In order to calculate the six sigma process values, internal quality control data for the CV value and external quality control data for the bias value were used. Acceptable sigma level was taken as 3. RESULTS:Within 6 months all parameters were observed above 3 sigma when Turkey TEa used. We determined that six months average process sigma values for parameters with different TEa values for Turkey and CLIA as Na 8.1vs 2.0; Cl 7.7vs 3.99; K 6.8vs 14.9; albumin 7.4vs 4.8; triglyceride 6.8vs 12.1; total protein 8.6vs 5.7; glucose 6.2vs 8.9; urea 5.8vs 7.8; cholesterol 4.5vs 3.9; creatinin 7.9vs 8.9; LDH 7.4vs 7.0; respectively. CONCLUSIONS:The limits set by Turkey and CLIA are different for some parameters and this leads to notable different results in the evaluation of the calculated sigma process values. We think that international standardization is required for TEa values so that the test evaluated as good according to a guideline does not appear to be unacceptable according to another guideline. Keywords: Six sigma process analysis, total allowable error, analytical performance, CLIA

PP-008
EVALUATION OF ANALYTICAL PERFORMANCE OF HbA2 ANALYSIS BY SIGMAMETRIC AND MEASUREMENT UNCERTAINTY

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OBJECTIVES:HbA2 is the fastest measurement for β thalassemia minor, commonly seen in Mediterranean countries. There are different procedures for evaluating analytical measurement performance. HbA2 measurement was evaluated by various analytical performance procedures. MATERIALS and METHODS:This study was performed in October 2017 - June 2018 monthly and in three cumulative data set. HPLC-BioRad VariantII Beta-Thal Program was used. Internal quality control (IQC) was conducted at two levels and external quality(EQC) was studied by EQAS and interpretive UKNEQAS. Sigmametrics (by2 formulas) were calculated using CVi, TEa(%) from biological variation. Measurement uncertainty (MU) was calculated from IQC and EQC. RESULTS:Variations of coefficient (CV%) were found as 3.4, 4.3, 3.6,% bias 1, 1.8, 4.5 and Sigmametric (Westgard) 0.4, 0.2, -0.9, Sigmametric (Coskun) 1.06, 0.5, 0.2 in three cumulative data. Monthly CV% were 2.9% in high, and 3.74% in low level control. Sigmametrics were -1.3 and 0.27 calculated by high level IQC CV% respectively, and 0.27 and 0.18 with low level control CV%, biases% from EQC. Contrarily, the EQAS z-scores were 0.48 (lowest-2.19), UKNEQAS was 0.2 (highest1.04). All UKNEQAS results were satisfactorily obtained. MU which affects to β thalassemia minor cut off value was found as 3.5x 14% = 0.49. CONCLUSIONS:Although analytical performance is assessed with various formulas, a consensus on TEa should be established in diagnostic tests such as HbA2. Traditional calculations will guide until efficient development is achieved. While measurement uncertainy may be a good option until a reliable TEa is established, many unknowns such as having no allowable level is a handicap of MU. Keywords: Sigmametric, measurement uncertainty, total allowable error

PP-009
AN EVALUATION OF IMMUNOASSAY TESTS WITH SIX SIGMA METHODOLOGY

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OBJECTIVES:Six Sigma Methodology is a quality measurement method for evaluating the performance of the laboratory. In this study, we aimed to evaluate the process sigma values and analytical performance of 22 immunassay tests by using internal quality control and external quality assessment data. MATERIALS and METHODS:Between January 2017 and June 2018, internal quality control data from the laboratory information management system (LIMS) and external quality data from the external quality assessment scheme in the same period were obtained retrospectively for 22 tests (TSH, FT3, FT4, HCG, E2, FSH, LH, PROG, PRL, Testosterone, TPSA, FPSA, Ferritin, Folate, vitamin B12, CA 125, CA 15-3, CA 19-9, CEA, vitamin D, AFP and PTH). Sigma values were calculated using bias, coefficient of variation (CV%) and allowable total error (TEa). TEa was obtained from the Biological Variation Database (BVD) data. Sigma values <3 were unacceptable, 3-6 were acceptable and ≥6 were considered optimal. RESULTS:When sigma values were calculated for both internal quality control levels, it was considered acceptable between 3-6 for TSH, FT3, FT4, HCG, E2, FSH, LH, PROG, PRL, Testosterone, TPSA, FPSA, Ferritin, Folate, vitamin B12, CA 125, CA 15-3, CA 19-9, CEA, vitamin D, AFP and PTH tests. CONCLUSIONS:According to the six sigma methodology,

analytical performance was found acceptable. For immunoassay tests it is also possible to determine the analytical performance with high probability of error by calculating process sigma levels.
Keywords: Bias, six sigma, allowable total error, immunoassay

PP-010
THE EFFECT OF HEMATOCRIT LEVEL ON COMPLETE BLOOD COUNT VALUES

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OBJECTIVES:Most analytical processes are influenced by factors such as matrix effects or optical interactions depending on the operations performed. This affects the accuracy of the numerical values obtained. It was aimed to investigate the effect of the quantitative values of the cellular elements in the venous blood on the results that obtained with complete blood count device. MATERIALS and METHODS:Venous whole blood specimens from a voluntary individual were taken into 6 hemogram tubes. One worked directly on the hemogram device. Then all were centrifuged to separate the plasma and cellular elements. Using the plasma as diluent, 12.50%,25 .00%,31.25%,37.50%,43.75%,50.00%,62,50% and 75,00% samples were prepared with cellular elements. All samples were prepared by mixing in each step and studied twice. The results were evaluated according to the R^2 values based on hematocrit and hemoglobin concentration levels. RESULTS:As expected, correlations between concentrations of cellular elements and quantitative cell numbers were observed. Values correlating with hematocrit values were determined as follows: MCH(p=0.001;r^2=0.802),MCHC(0.007;0.667), RDW_SD(0;0.967), MPV(0,001;0,81), P-LCC(0;0.967), P-LCR(0;0.903). CONCLUSIONS:As a consequence of changes in the density of cellular elements in the venous blood in vitro, it was observed that there were correlative changes in some parameters that are calculated proportionally or equally. This suggests that for some biochemical parameters, the relationship between anemia and polycythemia may be related to analytical processes. We recommend that analytical variability be taken into consideration while similar relationships are being assessed.
Keywords: Analytical Errors, Complete Blood Count, Hematocrit

PP-011
EVALUATION OF ANALYTICAL QUALITY PERFORMANCE OF THE ROUTINE COAGULATION TESTS

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OBJECTIVES:In this study, we aimed to investigate measurement uncertainty (MU), total analytical error (TE) and sigma values and the conformity of analytical quality targets for activated partial tromboplastin time (aPTT), protrombin time (PT) and fibrinogen tests. MATERIALS and METHODS:We calculated MU with NORDTEST guideline and TE with formula recommended by Westgard with internal quality controls (CV%) and external quality assessment (bias%) data for coagulation tests measured by Stago STA-R coagulation analyser for six months. Calculated values were compared with CLIA limits and total allowable error (TEa) obtained from the biological variation database. Sigma values were calculated by: (TEa-Bias%) /CV% formula. Quality goal index (QGI) ratios (QGI: Bias%/1.5*CV%) were used to determine, whether analytes which have low sigma values meet bias and precision quality targets. RESULTS:Calculated MU and TE values for aPTT, PT and fibrinogen were %8.73, %9.6 and %7.6 and %5.85, %9.25 and %11.47, respectively. MU and TE values were lower than biological variation TEa (%13.6) for fibrinogen however, higher for aPTT and PT (TEa 4.5% and 5.3% respectively). Whereas MU and TE values lower than CLIA targets for three parameters (for aPTT and PT; target ± 15%, for fibrinojen; target ± 20%). Sigma values were <3 (poor performance) for all parameters. With the calculated QGIs (QGI: <0.8 for all parameters), it was observed that all parameters had imprecision problems. CONCLUSIONS:Our findings suggest that, to eliminate the imprecision problem, more stringent internal quality control rules should be applied for routine coagulation tests.
Keywords: Analytical quality, six sigma, measurement uncertainity, total error, coagulation tests.

PP-012
COMPARISON OF LC-MS/MS AND HPLC METHODS IN TERMS OF PHENYLALANINE, TYROSINE AND TRYPTOPHAN VALUES

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OBJECTIVES:Phenylketonuria, tyrosinemia and many metabolic diseases are diagnosed and followed by phenylalanine, tyrosine and tryptophan levels. HPLC is the reference method for the measurement of phenylalanine, tyrosine and tryptophan. In our study, we aimed to compare the results of phenylalanine, tyrosine and tryptophan measured by LC-MS / MS method with HPLC method. MATERIALS and METHODS:This study was conducted with plasma samples obtained from 40 patients who applied to Uludağ University Health Practice and Research Center. Phenylalanine, tyrosine and tryptophan levels were studied using LC-MS/MS (Zivak Technologies), HPLC (thermo Finnigen) methods. Results were analyzed using Regression / Passing and Bablok regression and Bland Altman plot. RESULTS:Mean values of phenylalanine, tyrosine and tryptophan levels obtained by HPLC method were 463,8; 85.4 and 57.0 nmol / mL, respectively, while the LC-MS / MS method showed 455.4; 78.1 and 40.5 nmol / mL, respectively. There was a significant difference between the averages only for tryptophan ($p < 0.05$). In regression analysis R2 = 0.94 for phenylalanine, R2 = 0.84 for trypsin and R2 = 0.55 for tryptophan. CONCLUSIONS:There was no significant difference between LCMS / MS and HPLC methods in terms of phenylalanine and tyrosine results, but a statistically significant difference was found only in terms of tryptophan levels.
Keywords: Phenylalanine, tyrosine, tryptophan, LC-MS/MS, HPLC

PP-013
RECOVERY STUDY IN SERUM ANDROSTENEDIONE MEASUREMENT WITH LC-MS/MS

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OBJECTIVES:Measurement of serum androgens is important in adult, geriatric, pediatric endocrinology, and oncology patients. Measuring these steroid levels with specific and sensitive methods affects diagnostic accuracy. In this study, we aimed to perform the recovery study with androstenedion by LC-MS/MS system. MATERIALS and METHODS:For serum androstenedione measurement, 50 µL of internalstandard (d5- 11 deoxycortisol) in methanol was added to 250 µL standart or serum and centrifuged at 4.500 rpm for 10 minutes to remove the precipitated proteins. Supernatant was transferred to clean tubes and this procedure was performed twice. The supernatant was collected and dried under a nitrogen gas flow at 60 ◦C and dissolved in mobile phase. 60 µL was injected in to the ultra performance liquid chromatography analytical column for chromatography. RESULTS:According to results of recovery study androstenedione bias % did not exceed the limit of allowable bias % and 88,7 % recovery was acquired for androstenedione. CONCLUSIONS:Recovery study in serum androstenedione with LC-MS/MS method was found acceptable in evaluation of performance according to acceptable rules of method determined by CLSI.
Keywords: LC-MS/MS, androstenedione, recovery

PP-014
ANALYTICAL PERFORMANCE INDICATORS OF EMERGENCY CARDIAC PARAMETERS

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OBJECTIVES:In our study, we used internal and external quality control data to calculate CK-MB(mass) and high sensitivity TroponinT (hs-TnT) tests for measurement uncertainty (MU), total analytical error (TAE) and six sigma values. The aim of this study was to determine the analytical performance of our measurements and to evaluate the analytical stage. MATERIALS and METHODS:The MU for CK-MB and hs-TnT was calculated between October 2017-March 2018 on two cardiac devices of the same trademark and model (Cobas e411). The calculation was based on the NordTest NTTR537 guide. TAE was calculated using TAE=% Bias +(1.65 x% CV) formula. These values were compared with total allowable error (TEa%) obtained from biological variation database. When calculating the six sigma value %CV, %bias and %TEa were used. The results were evaluated according to the six sigma scale. Sigma values were gruped as follows: from 0 to 2.99: Group 1; 3 to 3.99: Group 2; 4 to 5.99: Group 3; 6 and greater: Group 4 (very good quality). RESULTS:In the evaluation, the extended MU of CK-MB and hs-TnT tests were 14.7%, 14.2% for the first device, respectively; 14.1% and 16.8% for second device. TAH values were 10.6%, 14.1%; 7.5%, 7.3%. Both MU and TAH values were found to be lower than TEa% (CK-MB: 30.06; hs-TnT: 48.9). Six-month sigma values for both the normal and pathological level of both devices were 5.6, 6.2; 4.8, 5.0 for CK-MB and 6.7, 15.7; 8.2, 15.3 for hs-TnT. In addition, CK-MB sigma values were evaluated according to Quality Goal Index. The values in Group 3 were linked to high imprecision. CONCLUSIONS:The analytical performance of CK-MB and hs-TnT tests in our emergency laboratory was found to be sufficient.
Keywords: measurement uncertainty, six sigma, total analytical error,

PP-016
COMPARISON OF THE THREE METHODS OF NGSP CERTIFICATE

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OBJECTIVES:Inter-laboratory or inter-method comparison studies provide evidence-based information about the compatibility of test results. This pathway is also useful for the harmonization of analytes, which are not clearly defined and have no reference methods. In this study, we aimed to compare the latex-enhanced immunoturbidimetric test (LGIT) turbidimetric inhibition immunoassay (TIAA) and high performance liquid chromatography (HPLC) methods used in the HbA1c measurement with the national glycohemoglobin cassette program (NGSP) material. MATERIALS and METHODS:For this study, 40 samples for HbA1c analysis were compared with three methods by Arkray8118 HPLC using the NGSP certified material provided by the Kırşehir Public Health Laboratory and Archem Diagnostic manufacturer. Blood samples which were for HbA1c calculation were analyzed with Abbott (LGIT) and Dirui CS 4000 which are not required a total hemoglobin measurement and with Cobas C513 (TIAA) which is required total hemoglobin measurement by using archem diagnostic (LGIT). Samples were studied two times in all three systems. The results were analyzed using the MedCalc statistical program. RESULTS:Positive and strong correlation was found between the methods ($r = 0.998$, $p < 0.001$). The average of the HPLC results was 6.94% (4.60%, the highest: 9.90%), the average of the TIAA results was 6.98% (lowest: 4.73%; the highest: 10.08%). the mean of Dirui LGIT results was 6.94% (lowest: 4.6%, highest: 9.87%). Among the three methods of Bland-Atman graph, the HbA1c averages were between HPLC, Abbott and Dirui -0.2 and 0.5 difference between HPLC and Cobas C513. CONCLUSIONS:HbA1c measurements with three different methods were found to be compatible, accurate and reliable. It was observed that the NGSP certificate given by the manufacturer was correct and reliable.
Keywords: HbA1c, LGIT, method comparison

PP-017
SIGMA METRIC ANALYSIS FOR THE PRE-ANALYTICAL PHASE

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OBJECTIVES:The preanalytical phase is the most complex and difficult to be control phase of the total test process. Six Sigma methodology; is a quality management tool based on statistical calculations, showing the degree of deviation from continuous perfection and providing information on process performance. In this study; we aimed to evaluate preanalytic process performance according to Six Sigma Methodology. MATERIALS and METHODS:This observational study was carried out for a period of six months from January-June 2018 in only core biochemistry laboratory. A total of 487.625 samples forms were screened for preanalytical errors like missing patient information, sample collection details in forms and hemolysed, lipemic, inappropriate, insufficient samples. Total number of errors were calculated and converted into defects per million and sigma scale. RESULTS:The overall rate of critical pre-analytical errors was 0.015 %, with a Six Sigma value of 5.2. The total rate of sampling errors in overall errors was 63.4%. The highest rates were found for the indicators “insufficient sample” (32.4 %), “clotted sample” (25.4 %), “lipemic sample” (4.2 %) and “haemolysed sample” (1.03%), with Six Sigma values of 5.5, 5.5, 5.9 and 5.9, respectively. CONCLUSIONS:If the magnitude of the preanalytical errors is correctly assessed, the process can be better controlled. The high level of errors associated with sample collection in this process is important to show that we need to take corrective actions on this issue.
Keywords: quality indicators, pre-analytical phase, six sigma

PP-018
ANALYTIC METHOD VALIDATION FOR DETECTION OF POLYAMINES IN SERUM BY USING HPLC FLUORESCENCE DETECTOR

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OBJECTIVES:Polyamines(putresin, spermidine, spermin) have important roles in living organisms as growth factors and in regulating metabolic events. In this study, polyamines were validated as per the Bioanalytical Method Validation for Industry of the Food and Drug Administration and the Bioanalytical Method Validation guides of the European Medicines Agency. MATERIALS and METHODS:100 µl serum samples were pre-treated with 1.5 M HCIO4 and protein structures were precipitated using 2M K2CO3. The polyamines were distinguished by in-line derivatization with o-phthalaldehyde and N-acetyl-L-cysteine on reverse phase C18 HPLC column with a 30-minute gradient program. In this way, the excitation in the wavelength of 340 nm and the emission of 450 nm were detected in the fluorescence detector. RESULTS:For putrescine, spermidine and spermine, linearity limits were found as 0.1-250 ng/ml, 0.5-250 ng/ml, 1-250 ng/ml; lower limit of measurement values were found as 0.2 ng/ml, 0.5 ng/ml, 1.0 ng/ml; recovery values were 89.6%, 89.6% and 88.4%; intra-day accuracy values were found as 6.3-13.6%, 3.4-8.6%, 1.5-6.0%; inter-day accuracy values were found as 5.7-12.4%, 6.1-9.1%,4.5-12.6%; precision values were found as 6.2-9.7%, 1.6-6.1%,5.4-13.8% respectively. CONCLUSIONS:In this study, centrifugation time in the sample preparation stage of present methods was reduced from 15 minutes to three minutes, which in turn increased recovery from 60% to about 90%. Acetonitrile was used instead of methanol which is normally used in the present method. Peak purity and a sufficient extent of peak separation were provided thanks to the newly developed gradient. As a result, an accurate, sensitive, reliable and reproducible method was developed and validated in this study.
Keywords: Polyamines, HPLC, derivatization, o-Phthalaldehyde, N-Acetyl-L-cysteine

PP-019
MINDRAY CL2000i CHEMILUMINESCENCE AUTOANALIZER EP15A3 VERIFICATION AND EP28A3C REFERENCE RANGE STUDY

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OBJECTIVES:Before working with new analyzers, it is important to verify data given by manufacturers.Accurate reference-intervals are required for interpretation of test results.Aim of the study was to conduct verification studies with the MindrayCL2000i autoanalyzer according to CLSI guidelines. MATERIALS and METHODS:Precision and trueness studies for TSH,fT3,fT4,ferritin, folate,vitaminB12,vitaminD,PTH,insulin,t. PSA,HCG,Ca125,Ca15.3,Ca19.9,CEA tests were performed according to EP15A3 with at least 2-level third party controls(ThermoScientificMAS). Reference-interval study was conducted according to EP28-A3C.The recommended reference-intervals were verified with 20 healthy adults(18-60years old)who were admitted for routine health screening tests and had no pathological results.In cases of deviation, at least 120 healthy adult samples and reference-intervals with 95%confidence-intervals were determined.The data were evaluated using Microsoft-Excel2016. RESULTS:Precision and trueness studies verified the relevant data of all tests given by manufacturer. The highest within-laboratory-CV was detected in folate(9.29%) and the lowest in fT4(1.4%).It was observed that the reference-intervals of VitaminB12,PTH,ferritin,Ca19.9 in both sexes and CEA,HCG in women were different from Osmaniye population and reference-intervals for these tests were updated according to EP28-A3C indirect-method.Reference-intervals for other tests have been verified. CONCLUSIONS:All tests were verified according to EP15-A3 criteria and the system was ready for routine analysis after reference-interval study.Precision and trueness studies in EP15-A3 can be carried out practically and concurrently with internal control,peer-group or assayed-group(for new methods) external control and 3rd party controls.Third party controls have serum matrix and bias calculations are easier to perform with them than with patient samples.Working with patient samples is harder as they require fresh preparation,elimination of preanalytical factors,and more time to supply both normal and pathological specimens.
Keywords: New method, verification, reference range

PP-020
DETERMINATION OF PROTOCATECHUIC ACID WITH HPLC-DAD IN FICUS CARICA EXTRACT

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OBJECTIVES:Ficus carica (fig) is a fruit that grows in dry and temperate climates. (1). Ficus carica; It is rich in calcium, potassium, ascorbic acid, vitamin A, fatty acids and many phenolic acids (2). Phenolic compounds are components with anticarcinogenic, antioxidative, antimutagenic, free radical binding and lipid peroxidation inhibition (3). MATERIALS and METHODS:In this study; the HPLC-DAD method was used to determine the amount of protocatechuic acid, one of the phenolic acids found in the content of the fig. In the study, the aqueous fraction of the Ficus carica fruit juice extract obtained in commercial form on the basis of water was prepared. RESULTS:As a result of HPLC-DAD analysis, the amount of protocatechuic acid was measured as $7.30299 \times 10^{\square 1}$ mg / L. CONCLUSIONS:The results show that applied extraction and HPLC-DAD analysis can be used to determine the selectivity of the protocatechuic acid.
Keywords: {Ficus carica}, protocatechuic acid, amount of phenolic substance, high performance liquid chromatography (HPLC).

PP-021
EVALUATION OF ANALYTICAL QUALITY FOR MEASURED LABORATORY TESTS: LDL-CHLOSTEROL EXAMPLE

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OBJECTIVES:LDL-Cholesterol (LDL-C) is one of the important criteria used for cardiovascular risk assesment. A lot of laboratories used Friedewald formula to calculate LDL-C. Besides direct measurement methods have been also developed. In clinical laboratories, quality assurance programs mostly applied for measured parameters. For the calculated parameters such as LDL-K, quality assurance programs do not applied. In this study we aimed to evaluate the total error (TE) and six sigma values for the analytical quality assessment for both measured and calculated LDL-C and to evaluate the difference between the calculated LDL-C and measured LDL-C. MATERIALS and METHODS:Cholesterol, LDL-C, HDL-C and triglyceride assays were performed on a Cobas c501 analyzer (Roche Diagnostics). Calculated LDL-C was estimated by using the Friedewald formula. To calculate TE and sigma values, 6-month retrospective internal quality control (CV%) and external quality evaluation data (bias%) were utilized. For calculated LDL-C, TE and sigma values were calculated using total cholesterol, triglyceride and HDL-C internal quality control and external quality assessment data. RESULTS:The TE values were 11.36 and 10.70 for the calculated and measured LDL-C, respectively. Sigma values were calculated 1.76 for calculated LDL-cholesterol and 2.77 for measured LDL-cholesterol. CONCLUSIONS:Since the calculated LDL-C depends on 3 different parameters, the calculated CV value is higher and sigma value for calculated LDL-C lower than the measured LDL-C. The TE for the calculated LDL-C was calculated to be above the total allowable error (11.9%), and it is lower for measured LDL-C.
Keywords: LDL-cholesterol, sigma, total error

PP-022
MOBILE PHONE APPLICATION FOR MEDICAL LABORATORY PROCESS MANAGEMENT

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OBJECTIVES:For the purpose of accessing right information for all customers of a medical laboratory and for targeting the all medical laboratory processes a 'Mobile Phone Laboratory Process Application' has been developed for the first consolidated medical laboratory of Turkey in Istanbul. MATERIALS and METHODS:The information and document examples on the test guide which used in the Central Laboratory have been converted to a Mobile Phone Laboratory Process Application with the help of the information technologies. RESULTS:Mobile Phone Laboratory Process Application tested by the laboratory specialists, technical information is checked for compatibility with existing test guidelines and the deficiencies are completed. CONCLUSIONS:Laboratory errors are especially concentrated in the preanalytical and the postanalytical phases. In order to manage these processes, it was aimed to send the test guide information by the shortest way to relevant units before sampling. The following study will evaluate the effectiveness by comparing the laboratory error rates before and after this Mobile Phone Laboratory Process Application usage for the following time period.
Keywords: laboratory error management,information technologies,mobile application

PP-023
A METHOD COMPARISON FOR D-DIMER MEASUREMENT

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OBJECTIVES:D-dimer is a fibrin degradation product, a small protein fragment present in the blood after a blood clot is degraded by fibrinolysis. The determination of D-dimer concentration may help to diagnose thromboembolism. Its plasma value increases in pulmonary embolism, venous thrombosis and disseminated intravascular co¬agulation. While a negative result practically rules out thrombosis, a positive re¬sult can indicate thrombosis but does not rule out other potential causes. In this study, we compare immunoenzymatic Vidas D-Dimer Exclusion II (Vidas 3- Bio Merieoux) to tubidimetric STA- Liatest D-Dimer+ (StaCompact – Diagnostico Stago). MATERIALS and METHODS:Dimer levels were measured in 81 citrated plasma samples immediately and simultaneously in both devices. Statistical analysis was made by using SPSS 18 (SPSS Inc.,Chicago, IL). RESULTS:According to the One-Sample Kolmogorov-Smirnov Test the data were not normally distributed and there was no statistically significant difference between the two groups due to Wilcoxon Test (p>0,05). CONCLUSIONS:The data showed that the results of each method were compatible with each other.
Keywords: D-Dimer, fibrin degradation product, method comparison

PP-024
DECREASED SERUM IRISIN LEVELS IN PATİENTS WITH TYPE 2 DIABETES MELLITUS

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OBJECTIVES:Irisin is an exercise-regulated myokine inducing browning of white adipose tissue and has gained interest as a potential new strategy to combat obesity and its associated disorders, such as type 2 diabetes mellitus (T2DM). Diabetes mellitus is the most common chronic disease characterized by hyperglycemia resulting from defects in insulin secretion and/or activity. The aim of this study was to investigate serum irisin levels in patients with type 2 diabetes mellitus. MATERIALS and METHODS:41 healthy control 33 prediabetic, 40 well-controlled and 43 uncontrolled patients with type 2 diabetes mellitus were enrolled to the study. Serum irisin levels were analyzed with Cusabio ELISA commercial kit. Briefly, standards and samples are pipetted into the wells and any Irisin present is bound by the immobilized antibody. After procedure, color develops in proportion to the amount of Irisin bound in the initial step. RESULTS:Serum irisin levels were significantly higher in control group [8.48 (3.73-65.91) ng/mL] compared to well-controlled [6.15(0-106) ng/mL] and uncontrolled diabetic groups [5.92 (2.04-97.42) ng/mL] ($p<0.001$ for all groups compared to control). CONCLUSIONS:Elevated irisin in T2DM is associated with indices of adiposity, and that irisin may be involved in pro-atherogenic endothelial disturbances that accompany obesity and T2DM. Serum irisin levels might be a promising biomarker for occurence of diabetes mellitus.
Keywords: Irisin, Diabetes Mellitus, Biomarker

PP-025
THE INVESTIGATION OF THE RELATIONSHIP BETWEEN URINE GLUCOSE LEVELS AND SERUM NATIVE THIOL LEVELS

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OBJECTIVES:OBJECTIVE: Glucose testing in urine is a test for medical conditions such as diabetes mellitus, cushing, pregnancy or poisoning. Serum thiol levels generally correlate with the serum albumin and indicate the level of SH groups in the serum. In this study, it was aimed to investigate the relationship between urinary glucose levels and serum native thiol levels. MATERIALS and METHODS:MATERIALS-METHODS: In this study, 155 patient samples were used for urine glucose test and serum native thiol test, which were performed in our laboratory in April and May of 2018. Urine samples were measured with Sysmex urine and serum samples were measured with Roche Cobas 8000 instrument. RESULTS:RESULTS: In this context, 155 samples were grouped as normal 1+, 2+, and 4+ according to glucose levels. The native thiol means in normal glucose group was found as 566,5µmol/L, in 1+ group 407,1 µmol/L, in 2+ group 374,09 µmol/L and in 4+ group 335,4 µmol/L. According to the One Way ANOWA test results with SPSS v22, there was a significant difference between normal glucose group and 1 +, 2 + and 4+ glucose groups $p<0.0001$. Furthermore, a statistically significant difference was found between 1+ glucose group and 4+ glucose group $p<0,05$. CONCLUSIONS:CONCLUSION: According to the data obtained from the study, damage to the kidneys caused by breakdown of the renal glucose threshold may have caused serum albumin to escape urine. We think that this may be a reason for reduced serum thiols that have a negative correlation with urine glucose level.
Keywords: Urine glucose, Native thiol, Serum

PP-026
INTRA-ERYTHROCYTE FOLATE LEVELS IN PATIENTS WITH DIABETES MELLITUS

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OBJECTIVES:We aimed to investigate serum vitamin B12, folate and corrected intra-erythrocyte folate (DEFA) levels in patients with diabetes mellitus (DM) and who were using different antidiabetic agents [Metformin, Sulfonylurea, Insulin, Dipeptidyl peptidase-4 inhibitors (DPP-4)].
MATERIALS and METHODS:A total of 300 subjects were included in the study, classified according to their HbA1c levels [<5.7 (Group 1), 5.7-6.4 (Group 2), and ≥ 6.5 (Group 3)]. In addition, the diabetes group (n = 73) was classified according to the antidiabetic agents used (AD-1=Metformin, AD-2=DPP-4, AD-3=Insulin, AD-4=Sulfonylurea, AD-5=Sulfonylurea+metformin). HbA1c was analyzed by TOSOH G8; glucose, triglycerides, HDL-cholesterol, total cholesterol by Roche Cobas 8000; hemoglobin and hematocrit by Sysmex XN-3000 and DEFAserum B12 and folate levels by a Roche Cobas 6000 analyzer.
RESULTS:DEFA levels were statistically significantly higher in Group 2 ($p<0.001$) and Group 3 ($p<0.001$) than in Group 1. There was a significant

difference between DEFA levels of the control group and the patient group using antidiabetic drugs (p <0.001).
There was no significant difference between serum B12 and folate levels (p >0.05).
Significant differences were found in DEFA levels between control group with AD-1 (p <0.001), control with AD-2 (p <0.05) and control group with AD-3 (p <0.001).
CONCLUSIONS:Our findings suggest that the high DEFA results obtained in the diabetic patients may result from the folate and vitamin B12 deficiency the folate trapping in the case of cobalamin deficiency or the supportive vitamin used in this patient group.
Keywords: intra-erythrocyte folate, vitamin B12, diabetes

PP-027
THE VALUE OF FRACTIONAL MAGNESIUM INCREASING EARLY RENAL TUBULAR DAMAGE IN NORMOTENTIVE TYPE-2 DM

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OBJECTIVES:Fractional magnesium excretion(FEMg) may be a better predictor according albumin to indicate the function of tubules and reabsorption capacity to excretion in the early stage of diabetic nephropathy. we aimed investigated the use of FEMg as a marker of tubular damage in the kidneys in normotensive type-2 diabetic patients MATERIALS and METHODS:49 normoalbuminuric and 42 microalbuminuric 91 normotensive type-2 diabetic patients,40 healthy were included in the study.Microalbumin and magnesium in spot urine specimens of all participants;magnesium levels in serum samples were measured.Correlation analysis was performed to determine the relationship between EGFR and FEMg.A comparison of ROC curves was performed in evaluation of FEMg and the diagnostic power of eGFR in microalbuminurics.Relative risk analysis was also performed for FEMg and eGFR associated with renal injury. RESULTS:Normoalbuminuric and albuminuric group FEMg values were higher(P<0.05).A moderately-close,proportional correlation was found between FEMg values and urinary albumin excretion(r=0,3215,P<0.05). There was a slight but inversely correlation between FEMg and eGFR values(r:-0.1934,P<0.05).In the ROC analysis for eGFR and FEMg, the areas under the curve were determined;0.625, 0.732, respectively.In patients with a FEMg score greater than 3.67,the risk of microalbuminuria was 2.97-fold greater than in those with a lower(95%CI:1.91-4.61,P<0.0001).The risk of detecting microalbuminuria in patients with an eGFR level of less than 89.83ml/min is 2.04 fold over the greater ones(95%CI:1.35-3.06,P=0.0006). CONCLUSIONS:In renal tubular damage detected by microalbuminuria,FEMg has adequate diagnostic and prognostic value. It is also thought that patients with type-2 diabetes may be able to use the renal tubular pathology, which can't be detected by albuminuria,even at the beginning.
Keywords: Diabetic Nephropathy, Fractional Excretion, Type 2 Diabetes

PP-028
BIOCHEMICAL BLOOD PARAMETERS AND AFFECTING FACTORS OF TYPE 2 DIABETIC INDIVIDUALS

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OBJECTIVES:The aim of this study is to evaluate biochemical blood parameters and some factors affecting these parameters of adult type 2 diabetes individuals. MATERIALS and METHODS:The study was conducted with 101 type 2 diabetic individuals (49 males, 52 females) with mean ages 56,3 ± 9,93, referred to the Bor Family Health Center between June-October 2016. The questionnarie include descriptive and diabetic features was applied and some anthropometric measurements were made in accordance with the techniques. Some biochemical blood parameters routinely viewed were recorded from the Family Health Center information system. The body mass index (BMI) was calculated by dividing body weight (kg) by height square (m2). RESULTS:The fasting blood glucose and glycated hemoglobin (HbA1c) levels of the individuals with >11 years of diabetes duration were the highest, while those with 1-5 years duration were the highest (p <0.05). Total cholesterol and high density lypoprotein (HDL) levels of females were higher than males (p <0.05). BMI was lowest in housewives and highest inworkers (p <0.05). Total cholesterol was lowest in housewives and highest in retired individuals (p <0.05). CONCLUSIONS:Fasting blood glucose, HbA1c, total cholesterol and HDL levels of type 2 diabetic individuals may differ according to diabetes duration, gender and occupation. Multi-center and larger sample size studies could be effective to determine in more detail the factors affecting biochemical blood parametes in type 2 diabetic individuals.
Keywords: diabetes mellitus, obesity, blood glucose, glycated hemoglobin

PP-029
CISTUS LAURIFOLIUS, AMELIORATES THE LEVELS OF INSULIN, AMYLASE AND LIPASE IN DIABETIC RATS

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OBJECTIVES:Diabetes mellitus is considered to be one of the five major causes of death around the world and is considered a global public health problem due to its multi-factorial characteristics affecting basic biochemical processes in the body. Metformin (MET) is currently the most widely used first-line anti-hyperglycemic agent for diabetes mellitus. Plants are important resource in the discovery of anti-diabetic drugs. In order to explain the pharmacological basis of the antidiabetic activity of Cistus laurifolius (CL), the effect on insulin, lipase and amylase levels was examined in diabetic rats caused by STZ. MATERIALS and METHODS:Fourty wistar male rats were divided into 5 groups, Group I Animals were served as control. Group II Animals were injected intraperitoneally with a single dose of streptozotocin (STZ) (55mg/kg of body weight (BW)) to induce diabetes. After 7 days, Group III and V diabetic rats were treated with 250 mg/kg and 125 mg/kg of aqueous extract of CL, respectively. Group IV diabetic rats were treated with 100 mg/kg MET in order to compare the effects of plant extracts. CL and MET were orally administered to rats and after 4 hours blood samples were taken. Blood levels of insulin, lipase and amylase were then measured. RESULTS:A significant decrease (p<0.05) in the serum levels of insulin, lipase and amylase were observed STZ-induced diabetic rats compare with control groups. MET and aqueous extract of CL groups improved levels of insulin, amylase and lipase compared with STZ group. Dosage-dependent effects of CL plant extracts did not change significantly (p>0.05). CONCLUSIONS:These findings support the fact that aqueous extract of Cistus laurifolius has an acute antidiabetic effect and may be useful in controlling hyperglycemia.
Keywords: Diabetes Mellitus, Pancreatic functions, Metformin, Cistus laurifolius, acute antidiabetic effect, hyperglicemia

PP-030
ASSESSMENT OF ESTIMATED GLOMERULAR FILTRATION RATE BASED ON CYSTATIN C IN DIABETIC NEPHROPATHY

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OBJECTIVES:GFRs are estimated by using albumin, creatinine and cystatin C to determine renal dysfunction. Our aim is to evaluate estimatedGFR (eGFR) based on cystatin C in Type 2 diabetic nephropathy patients. MATERIALS and METHODS:Study group: Control [n=52,age:54.5(SD:12.4)]; Diabetic: [n=101,age: 58.2(SD:11)]. The diabetics were divided into three subgroups according to 24-hour urine albumin: 51 normoalbuminuric (NorAlb), 25 microalbuminuric (MicAlb); 25 macroalbuminuric (MacAlb). Creatinine clearance (measuredGFR-mGFR) was determined. Correlations (Spearman correlation coefficients) between mGFRs and eGFRs estimated according to the Cockcroft-Gault, MDRD, and CKD-EPI formulas, and ROC curves were evaluated. The mGFRs and eGFRs were compared by One-way ANOVA. RESULTS:MDRD-eGFRs were significantly correlated with mGFRs in each group [Control: rMDRD= 0.392(p=0.004), NorAlb: rMDRD=0.431(p=0.002), MicAlb: rMDRD=0.837(p=0.000), MacAlb: rMDRD=0.935(p=0.000)], while the CG, EPI-creat and EPI-cys eGFRs were significantly correlated in NorAlbs, MicAlbs and MacAlbs [NorAlb:rCG=0.529(p=0.000), rEPI-creat=0.457(p=0.001),rEPI-cys=0.373(p=0.001), MicAlb: rCG=0.883(p=0.000), rEPI-creat=0.832(p=0.000), rEPI-cys=0.718(p=0.000), MacAlb: rCG=0.885(p=0.000), rEPI-creat=0.942(p=0.000), rEPI-cys=0.860(p=0.000)]. The CG-eGFRs of the MacAlbs were not significantly different in the other groups except controls and NorAlbs (pControl = 0.000, pNorAlb = 0.000, pMicAlb = 0.052). The mGFRs and eGHRs of the MicAlbs and MacAlbs except for CG-eGFR were significantly different from both the controls and DM-NormAlbs (MicAlb: pEPI-creat=0.000, pMDRD=0.010, pEPI-cys=0.000, MacAlb: pEPI-creat=0.000, pMDRD=0.000, pEPI- cys=0.000); the MacAlbs were significantly different from the MicAlbs (pEPI-creat=0.004, pMDRD=0.002, pEPI-cys=0.001). The area under the EPI-cys-eGFR ROC Curve was the highest and found as 0.847(95%CI 0.763-0.931;p=0.000). CONCLUSIONS:EPI-cys-eGFRs of all diabetics including normoalbuminurics were significantly different from controls, while EPI-creat, EPI-cys and MDRD eGFRs in microalbuminurics were significantly different from DM-normoalbuminurics.
Keywords: diabetic nephropathy, GFR, cystatine C

PP-032
EVALUATION OF HLA CLASS II POLYMORPHISMS AS A RISK FACTOR IN PATIENTS WITH TYPE I DIABETES MELLITUS

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OBJECTIVES:Type 1 diabetes mellitus (T1D) is a chronic autoimmune disease characterized by the absence of insulin as a result of the immuno-selective destruction of beta cells of the langerhans islets in pancreas. Environmental and genetic risk factors play a role in the occurence of T1D. Human leukocyte antigen (HLA) class II molecules particularly DQA1 and DQB1 haplotypes have been discovered to be related with the T1D. In our study, it was aimed to detect haplotypes which make individuals susceptible to or protect against T1D in Jordanian population. MATERIALS and METHODS:DNA was purified from blood taken from healthy participants and T1D patients. HLA-DQA1, HLA-DQB1 and cytotoxic T-lymphocyte associated protein 4 (CTLA-4) gene regions were amplified by PCR followed by restriction digestion. Finally digestion products were applied to the agarose gel electrophoresis to evaluate different haplotypes. RESULTS:Only DQA1*0301 has been found to increase susceptibility for T1D. On the other hand, DQA1*0201 and DQB1*0501 have been detected as protective against T1D. Other haplotypes did not reveal significant differences in control and patient groups. Also, no significant correlation has been observed in terms of CTLA-4 polymorphisms. CONCLUSIONS:Although different ethnic groups exhibit various types of HLA class II polymorphisms, identification of haplotypes which could be considered as risk factors for T1D might be helpful in the prevention of the disease.
Keywords: Cytotoxic T-lymphocyte associated protein 4, human leukocyte antigen class II, type 1 diabetes mellitus

PP-033
THE EFFECT OF CISTUS L. ON RENAL FUNCTION, HEPATIC ENZYME AND LIPID PROFILE IN DIABETIC RATS

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OBJECTIVES:In this study, it was aimed to investigate the effect of diabetic injury on renal function, hepatic enzyme levels and lipid profile. At the same time, the therapeutic properties of commonly used metformin (MET) in diabetes treatment and Cistus laurifolius (CL) plant extracts against diabetic damage were investigated for the first time MATERIALS and METHODS:In this experimental study, fourty wistar albino rats were divided randomly into five groups (n=8) of control, diabetes, diabetes + CL(250 and 125 mg/kg), and diabetes + MET (100 mg/kg). Intraperitoneal (i.p.) injection of single dose streptozotocin (STZ) (55 mg/kg) was administered to create diabetes outside the control group. Aqueous extracts of CL and MET were given orally to the animals 1 week after STZ administration. To determine the acute effects, after 4 hours all animals were sacrificed and blood samples taken. Blood urea nitrogen (BUN), creatinine levels for renal functions, alanine-aminotransferase (ALT) and aspartate-aminotransferase (AST) levels for hepatic enzyme levels and high density lipoprotein cholesterol (HDL), low density lipoprotein cholesterol (LDL-C), total cholesterol and triglyceride (TG) levels for lipid profile were measured in serum. RESULTS:A significant increase in the serum levels of ALT, AST, LDL-C, total cholesterol, BUN, creatinine and a significant decrease in HDL-C levels were observed in diabetic rats ($P<0.05$). The groups treated with CL and MET indicated a significant decrease in BUN, creatinine, AST, ALT, TG, total cholesterol, LDL-C and an increase in HDL levels, while different dose groups of CL did not show significant changes. CONCLUSIONS:Aqueous extract of Cistus laurifolius was observed have positive effects via Metformin on renal, hepatic functions and lipid profile in STZ-induced diabetic rats.
Keywords: Diabetes, Metformin, Cistus laurifolius, renal function, hepatic enzyme levels, lipid profile

PP-034
RELATIONSHIP BETWEEN NETRIN-1 AND ATEROSCLEROSIS INDICATORS IN CARDIORENAL SYNDROME

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OBJECTIVES:Cardiorenal syndrome (CRS) is an acute or chronic disease of the heart and kidney, that causes dysfunction of one organ induces a damage in the other. Netrin found in endothelial cells as well as the nervous system. Netrin-1 plays a role in postnatal angiogenesis and atherosclerosis, especially in the context of ischemic injury. In this study, we aimed to investigate the relationship of Netrin-1 with cardiac structure, hemodynamic parameters and arterial stiffness in CRS patients. MATERIALS and METHODS:Netrin-1 was studied in the blood of 89 CRS patients and 54 control cases who applied to the Medical Faculty Hospital of Selcuk University. Central and peripheral blood pressures, pulse wave velocity (PWV), pulse wave analysis (PWA) were assessed through arteriography and echocardiography were performed for 24 hours. RESULTS:When the correlation of the Netrin-1 values of the patients with the arteriographic and echocardiographic parameters were evaluated, end-diastole diameter ($r = 0.208$, $p = 0.038$) and 24h PWV ($r=0.254$, $p=0.009$) were showed positive and ejection fraction ($r=-0.199$, $p=0.047$), day central systolic blood pressure ($r=-0.205$, $p=0.037$), central diastolic blood pressure ($r=-0.285$, $p=-0.291$, $p=0.003$), night augmentation index ($r=-0.240$, $p=0.014$) and night peripheral resistance ($r=-0.246$, $p=0.012$) were showed negative correlation. CONCLUSIONS:Netrin-1 inhibits arterial infiltration of monocytes and exhibits an antiatherogenic effect. In our study, in addition to approved biochemical markers such as BNP, proBNP, creatinine, GFR and cystatin C, which are commonly used in the diagnosis and follow-up of KRS, relationship between Netrin-1, a promising molecule, and cardiac, hemodynamic parameters and arterial stiffness has been revealed in the KRS.
Keywords: Cardiorenal syndrome, Netrin-1, Atherosclerosis

PP-035
EFFECT OF CIPROXIFAN AFTER CEREBRAL ISCHEMIA REPERFUSION INJURY ON LUNG TISSUE

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OBJECTIVES:Brain ischemia leads to functional or structural damage extending to cell death. Ischemia results in many histological and biochemical changes due to protein synthesis, cell membrane, genetic elements of the cell, and mitochondrial oxidative phosphorylation damage. Experimental studies have shown that ciproxifan has wakefulness and attention enhancing effects. The aim of our study was to investigate the protective effect of ciproxifan on the lungs in experimental brain ischemia-reperfusion injury. MATERIALS and METHODS:64 rats (female and male) were used in 8 groups in study. No surgical procedure was applied to the control group. Sham group received ischemia for 15 min after single dose of DMSO for 7 days. Experimental group 1 received ischemia for 15 min after was given a single dose of ciproxifan 10 mg / kg for 7 days. Experiment 2 received ischemia for 15 min after was given a single dose of ciproxifan 30 mg / kg for 7 days. Lung tissues of all rats were collected, after 24 hours of reperfusion. RESULTS:Examination of rat lungs revealed normal histological structure in the lungs of control group rats. Alveolar wall thickening, partial cellular infiltration and haemorrhagic veins were observed in the lungs of sham group rats. In the lungs of Experiment 1 and Experiment 2 rats, pulmonary tissue was observed in the lungs with decreased damage. CONCLUSIONS:As a result of our study, it was found that ciproxifen administration in the histopathological evaluation of brain ischemia-reperfusion injury in the lung was partly effective, regardless of gender difference.
Keywords: Cerebral ischemia, Ciproxifan, Lung

PP-036
EVALUATION OF URINARY ORGANIC ACIDS IN THE PEDIATRIC AGE GROUP IN KONYA REGION

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OBJECTIVES:Organic acidemias are inborn errors of metabolism in the amino

acid, lipid and carbohydrate metabolism. In our study, it was aimed to evaluate the results of urinary organic acid analysis in pediatric age group in Konya region. MATERIALS and METHODS:128 patients who were applied to Necmettin Erbakan University Meram Faculty of Medicine Department of Biochemistry Laboratory suspected by metabolic disease between February 2015- December 2016 were evaluated retrospectively. RESULTS:128 patients (58.6% male, 41.4% female) were examined by GC-MS method; the age of the applicant was 2.48 ± 3.6 (male); girl was 2,76 ± 4,5 years (mean ± standard deviation). (n = 78) patients had normal levels of organic acid excretion. Adipic acid (n = 16); 3-OH Isovaleric acid, 3-OH Butyric acid, Lactic acid, 4-OH Phenylactic acid (n = 15); 4-OH Phenylpyruvic acid (n = 12); Pyruvic acid, Acetoacetate (n = 11); Suberic acid, 3-OH Sebacic acid (n = 10); Methyl malonic acid (n = 9); 3-OH Dodecanedioic acid (n = 7); Fumaric acid (n = 5); N-Acetyl tyrosine, Oxalic acid (n = 4); Tigylglycine, Methyl citrate, Homogentic acid, Succinic acid, Ethyl malonic acid (n = 3); Sebacic acid, 2-ketoisocaproic acid, 2 hydroxyisovaleric acid (n = 2); 3-OH Propionic acid, Propionylglycine, Glutaric acid, 3-OH-3-methyl glutaric acid, Succinyl acetone, Orotic acid, 2 hydroxy iso caproic acid, 2 hydroxy 3 methyl valeric acid, Homovalinic acid (n = 1), organic acid excretion were detected. CONCLUSIONS:This study evaluated the organic acid levels of patients living in our region.
Keywords: organic acid, metabolic disease, GC MS

PP-037
LOCALLY DERIVED SERUM CALCIUM ADJUSTMENT EQUATION: RELATIONSHIP WITH VITAMIN D AND PARATHORMON LEVELS

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OBJECTIVES:To determine a new adjusted calcium equation in our laboratory, to compare it with the equation currently used in routine studies, to assess the relationship between 25(OH)VitD and PTH levels. MATERIALS and METHODS:Between January 2017 and August 2018, 107 patients were selected using exclusion criteria from patients whose calcium and albumin were measured simultaneously. The relationship between albumin and calcium was defined by linear regression analysis; slope and intercept were determined and an adjusted calcium (ACa) equation was obtained. We calculated two ACa values of 148 804 patients. Patients were classified as hypocalcemic (<8.8 mg/dL), normocalcemic (8.8-10.4 mg/dL) or hypercalcemic (>10.4 mg/dL).The Mann-Whitney U test was used to determine statistically significant differences of 25(OH)VitD and PTH values between these groups. RESULTS:ACa =Total Ca(mmol/L) – (0.0134*[Albumin(g/L)]) + (2.4 -1.7597) equation was obtained.The ACa concentrations were on average 0.52 mg/dL higher using the new equation that provided a 8-fold reduction in the prevalence of hypocalcemia 1.3-fold increase in the prevalence of normocalcemia. For all patients who had PTH values (n=7799), those defined as hypocalcemic using the new equation had higher mean PTH levels than those by using the old equation (p<0.0001). In all patients who had 25(OH)vitD values (n=53 369), patients defined as hypocalcemic using the new equation had lower mean 25(OH)vitD levels than those using the old equation (p<0.0001). CONCLUSIONS:The new calcium equation found higher ACa values and led to significant changes in the hypocalcemia, normocalcemia and hypercalcemia classifications.Patients classified as hypocalcemic by the new equation had lower 25(OH)vitD and higher PTH values.
Keywords: Calcium, Vitamin D, Parathormon, Albumin

PP-039
COMPARISON OF REFERENCE CHANGE VALUE AND POPULATION DISTRIBUTION IN DELTA CHECK LIMITS

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OBJECTIVES:Delta Check is a quality control method that compares present and previous test results of patients and detects whether the difference between the two results exceeds pre-defined criteria. We aimed to determine the utility of Reference Change Value (RCV) and poulation distribution as Delta Check Limits in the parameters of Glucose, Creatinine, Albumin, Total Protein, Sodium and Potassium in our study. MATERIALS and METHODS:In this study, Delta Check Limits were established by RCV and the Delta Percent Change Method. The histogram of the data obtained by the Percentage Change Method was plotted on a 95% column graph. Delta Check Limits for each analyte were determined at 2.5th and 97.5th percentile values. RCV was calculated in a 95% confidence interval using the 6-month Analytic Variation and Westgard's Intra-individual Biological Variation data. The difference between the limits of the population distribution and RCV was assessed. RESULTS:Lower and upper Delta Check Limits for Glucose, Creatinine, Albumin, Total Protein, Sodium and Potassium were calculated as -11.37, -10.51, -5.76, -6.56, -6.11, -6.88; 10.09, 9.37, 5.32, 6.22, 6.19, 6.38. RCV were found as 17.55, 21.47, 11.9, 9.44, 6, 13.71. CONCLUSIONS:Biological Variation data are obtained from healthy populations or persons with stable chronic diseases. Therefore, fluctuations due to Intra-individual Biological Variation cause problems in the clinical evaluation of Delta Check results. Consequently, it is thought that it is more appropriate to evaluate the RCV with the Delta Control Methods reflecting the population distribution instead of using it directly as the Delta Check Limit.
Keywords: Biological Variation, Delta Check, Reference Change Value

PP-040
IS HIGH SENSITIVITY TROPONIN T REQUESTED APPROPRIATELY IN PEDIATRIC PATIENTS?

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OBJECTIVES:Cardiac troponins are used in the diagnosis of myocardial ischemia in adults. However, the purpose of use in the pediatric population is not clear. The aim of this study is to evaluate the rational request of this test in patients who admitted to our emergency service. MATERIALS and METHODS:The study included 1423 pediatric patients (736 F, 687 M) with hs-TnT requesting at the emergency pediatric service from January 1 to August 17, 2018. hs-TnT was studied on a Cobas E411 immunochemistry analyser (Roche Diagnostics). Hs-TnT results were evaluated according to age, sex and clinical preliminary diagnosis information obtained from the LIMS. RESULTS:Clinical preliminary diagnoses of 1423 patients were; chest pain (%36.4), exposure to drugs, pills and biological substances and accidental poisoning (%12.7), syncope and fainting (%7.9), carbon monoxide intoxication (%2.7), acute nasopharyngitis (%2.7), abdominal pain and unspecified (%2.6), unidentified tachycardia (%2.3), dizziness (Vertigo) (%2.0), nausea and vomiting (%2.2), acute tonsillitis (%1.8), headache (%1.5), without diagnosis (%1.5), possible drug abuse (%1.4), fever undefined (%1.1), dyspnea (%1.0), dissociative disorders (%0.8) and other (%19.4). The hs-TnT value in 69 patients (4.8%) was above the cut-off value of 14 µg/L (14-49 µg/L in 54 patients, 50-99 µg/L in 6 patients and ≥100 µg/L in 9 patients). CONCLUSIONS:Our findings suggest that the cardiac hs-TnT test is requested inappropriately in our emergency pediatric clinic. The indications and frequency of requesting should be determined for the pediatric patient group.
Keywords: Rational test requesting, Cardiac troponins, pediatric patient group

PP-041
CURCUMIN-OXIME: A NOVEL IRON CHELATING LIGAND FOR IRON OVERLOAD DISEASES

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OBJECTIVES:Iron overloads are a serious clinical condition in human health and are therefore a key target in drug development. The aim of this study was to investigate the coordination, electrochemical behavior and cytotoxic activity of Fe(III) with a curcumin-oxime ligand that may be used in the treatment of iron overload. MATERIALS and METHODS:The synthesis of the curcumin-oxime ligand and its Fe(III) complex were successfully done and characterized in its solid state and solution state by UV-Vis, elemental analysis, and 1H-NMR. The cytotoxic activities of the ligand and the Fe (III) complex were investigated on the HUVEC cells using the MTT viability test. Electrochemical behavior of the ligand and complex were examined using Cyclic voltammetry. RESULTS:The results showed that the investigated complex had a minimum cytotoxic effect compared to the ligand. Curcumin-oxime-Fe(III) complex showed a higher antioxidant effect towards the HUVEC cell line at IC50 values of 4.05 than curcumin. Catalase activities of the complex were investigated. It was shown that the complex has catalase activity. It is suggested that this type of complex may constitute a new and interesting basis for the future search of new and more potent drugs. Electrochemistry studies showed that Fe3+/Fe2+ couple redox process occurs in low potential. This value is within the range of compounds that are expected to show superoxidedismutase activity. CONCLUSIONS:Our results confirm the hypothesis that curcumin-oxime acts as an iron chelator and our in vitro results demonstrated that curcumin-oxime has the potential to exhibit a positive effect on iron overload for the first time.
Keywords: Curcumin-oxime, iron overload, cyclic voltammetry, MTT, catalase, ligand.

PP-042
DNA BINDING, LIPASE INHIBITION POTENTIAL AND HYDROGEN PEROXIDE SCAVENGING ABILITY OF SOME PHTHALOCY

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OBJECTIVES:The aim of this study was to investigate the lipase inhibition, DNA binding properties and hydrogen peroxide scavenging ability of some phthalocyanines containing isoeugenol. MATERIALS and METHODS:For investigating the hydrogen peroxide scavenging ability of phthalocyanines hydrogen peroxide solution was mixed with the phthalocyanines. After ten ninute incubation, the absorbance of hydrogen peroxide was measured at 230 nm against blank solution. To test pancreatic lipase inhibiton potential of phthalocyanines, a reaction mixture containing sodium deoxycolate, gum arabic and phthalocyanine was incubated for 20 minute. Then substrate solution was added and after 15 minute incubation period at 37C the absorbance at 410 nm was recorded. For the DNA binding assay electronic spectral titration experiment was performed with CT-DNA. Absorption spectra were recorded in the region of 250–900 nm. The concentration of phthalocyanines was kept constant, while CT-DNA concentration was gradually increased. RESULTS:3, 1a, 2a, 3a demonstrated better hydrogen peroxide scavenging activities than ascorbic acid. Lipase activity changed negatively while complex concentrations increased. 1a, 2a, 3a, 4a required 12.92 ± 0.31, 8.63 ± 0.12, 5.61 ± 0.55 and 1.12 ± 0.19 µM concentration, respectively to inhibit 50% of the lipase activity. Small hypochromic shift at the Q band of Pcs endorsing weak interactions or non-intercalative binding mode between DNA and phthalocyanines were obtained. Any bathochromic or hypsochromic shift was obtained for studied phthalocyanines. CONCLUSIONS:Studied ofphthalocyanines containing isoeugenol showed lipase inhibition and hydrogen peroxide scavenging activities with weak interactions with DNA.
Keywords: Phthalocyanine, DNA Binding, Lipase Inhibition, Hydrogen Peroxide Scavenging

PP-044
THE EFFECT OF ACRYLAMIDE ON SERUM ALKALINE PHOSPHATASE LEVEL IN RATS

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OBJECTIVES:Previous studies have shown that acrylamide has neurological, biochemical and hematological toxic effects in animals and in humans. Alkaline phosphatase (ALP) is an enzyme that it has liver, bone and intestinal isoenzymes and its level is tested at these organ pathologies. In this study, we aimed to examine the effect of acrylamide on serum ALP level. MATERIALS and METHODS:In this study, 14 male Sprague Dawley rats of 13 weeks were used. Rats were divided into two groups as control and acrylamide groups. The control group received daily saline solution in a single dose for 21 days by gavage. The acrylamide group treated with 40 mg/kg acrylamide in same way and duration. Then the rats were sacrificed. Blood was taken intracardiacally from the rats. Collected blood was centrifuged at 4.000 rpm for 10 minutes at + 4° C. The upper part (serum) was collected in another tube. The level of ALP was measured by an enzymatic colorimetric method. RESULTS:Average of serum ALP level was 107.5±16.3 U/L in the control group, while it was found as 136±38.6 U/L in the acrylamide group (p>0.05). CONCLUSIONS:Serum ALP level in acrylamide group was higher than that of control. However, no statistical difference was found.
Keywords: Acrylamide, Alkaline Phosphatase, Rat

PP-045
EFFECT OF CARNOSIC ACID ON LIVER WEIGHT IN RATS

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OBJECTIVES:Carnosic acid is a phenolic compound, known as C20H28O4 and found in sage and rosemary. Carnosic acid exerts anti-oxidant and anti-inflammatory effects. When viewed from this aspect, carnosic acid has improving effect on liver function. Therefore,as a preliminary study, we aimed how carnosic acid affects liver weight in rats. MATERIALS and METHODS:In the experiment, adult male Sprague Dawley rats were used. The rats were assigned into two groups, each containing 7 animals, as control and carnosic acid groups. The rats were sacrificed after receiving 60 mg/kg carnosic acid once a day by gavage for 21 days. Liver weights of rats were measured and recorded. RESULTS:While the average of liver weights of the rats was found as 11.46±0.58 g in the control group, the average of liver weights was found as 10.83±1.36 g in the acrylamide group (p>0.05). CONCLUSIONS:Carnosic acid does not cause significant changes in average liver weight in the rats.
Keywords: Carnosic acid, Rats, Liver weight

PP-046
BASIC FIRST AID EUDCATION LEVELS OF STUDENTS IN VOCATIONAL SCHOOL OF HEALTH SERVICES

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OBJECTIVES:The aim of this study was to determine the knowledge level of the first aid students of the 19 different programs in a Vocational School of Health Services. MATERIALS and METHODS:The questionnaire was applied to 50% of the second year students in the academic year of 2017-2018 (n = 296). The questionnaire consists of a total of 31 questions about socio-demographic characteristics and basic first aid information. RESULTS:The average age of the students was determined as 21.93 ± 2.4. 64.9% of the participants were male and 35.1% were female. The number of those who found themselves well enough for basic first aid were n = 146 (49.3%) and the number of people who declared that they did not find themselves adequate for basic first aid were n = 150 (50.7%). The most correct answered question was found to be the 'definition of first aid' (97.9%) whereas the least correct answered question was found to be 'the compression velocity that is applied to the chest in an effective cardiopulmonary resuscitation' (21.6%). CONCLUSIONS:As the practical sessions were limited in time, this did not give enough opportunity to the students to practice with model samples. Therefore, this prevent students from consolidating their knowledge. However, summer internships and semester training and applications through out the academic period ensures that students are achieving sufficient information level during the vesture training sessions with real patients.
Keywords: First aid information, Vocational School of Health Services, First aid education

PP-047
EFFECTS OF ZINC AND COPPER PYRITHIONE ON VITELLOGENIN LEVELS OF ZEBRAFISH (DANIO RERIO)

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OBJECTIVES:In this study, the effects of the antifouling agents zinc and copper pyrithione and their mixture have been determined on the aquatic toxicology by using zebrafish. MATERIALS and METHODS:Male zebrafish with the length of 3.66 ±0.52 cm were used in the experiments. In the experiment, 1 µg / L zinc pyrithione, 0.1 µg / L copper pyrithione, 1 µg / L zinc pyrithione+ 0.1 µg / L copper pyrithione mixtures were used as concentrations with control group. Tissue samples were taken after following exposure to 24 and 96 hours. Vitellogenin levels were analyzed by using ELISA with commercial kits. RESULTS:The vitellogenin levels of the zebrafish exposed 0.1 µg/L copper pyrithione and 0.1 µg/L copper pyrithione + 1 µg/L zinc pyrithione mixture increased significantly ($p < 0.05$) and the vitellogenin levels of the zebrafish exposed to zinc pyrithione did not change after 24 hours. In After 96 hours, exposure to both substances increased vitellogenin levels significantly ($p < 0.05$). The results of vitellogenin analysis show a good biomarker for endocrine disruptor determination and the combination of these two substances more effectively effect the endocrine system. CONCLUSIONS:The results of vitellogenin analysis represents that vitellogenin can be a good biomarker for endocrine disruptor determination. This study was partially supported by Gazi University Scientific Project's with the contract number of 18/2017-02.
Keywords: Vitellogenin, endocrine distruptor, pyrthion

PP-048
LEVELS OF IL-18 AND IL-18BP IN PATIENTS WITH POLYCYSTIC OVARY SYNDROME WITH AND WITHOUT THYROIDITIS

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OBJECTIVES:Thyroid disorders, especially Hashimoto's thyroiditis (HT), and polycystic ovary syndrome (PCOS) are closely associated, not only with respect to their prevalence, but also with regard to etiology and clinical consequences. The purpose of this study is to investigate the levels of pro-inflammatory cytokines Interleukin-18 (IL-18) and IL-18 binding protein (IL-18BP) in PCOS patients with and without HT, so that we can obtain new data about the immunopathologic aspects of these diseases. MATERIALS and METHODS:This study included 92 patients diagnosed as either PCOS or HT or both and their blood samples were kept at -80oC until the assay time. The levels of inflammation parameters IL-18 and IL-18BP were assayed by using microelisa method in 81 patient samples convenient for the study protocol. FBG, HOMA-IR and HBA1c values were obtained from Laboratory Information System. RESULTS:There were no significant difference in IL-18 and IL-18BP levels when the three groups (patients with PCOS, n=27; with HT, n=27 and with PCOS+HT, n=27) were compared to each other. However, the statistics showed a powerful correlation between IL-18 and IL-18BP ($r=0.573$, $p<0.002$) and such a good correlation was observed between IL-18 and HOMA-IR in the group of patients with HT ($r=0.409$, $p<0.038$). None of these correlations were observed in the group with PCOS+HT. CONCLUSIONS:The strong correlation between IL-18 and IL-18BP in the patient group diagnosed as PCOS might suggest that inflammatory process is more prominent in this syndrome compared to the autoimmune thyroid disorder, namely HT.
Keywords: PCOS, HT, IL-18, IL-18BP

PP-050
DIURNAL VARIATION OF SOME HORMONE TESTS, VITAMINS AND TUMOR MARKERS

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OBJECTIVES:Some of commonly used tests can be requested at any time of the day. There could be some variations at these different time intervals in a day. In order to make a correct and reliable decision on the diagnosis and follow-up of patients, the clinical significance of these variations should be known. MATERIALS and METHODS:Blood samples were taken from 16 healthy adult volunteers (11 males, 5 females) at 09.00, 10.00, 11.00, 12.00, 15.00, 18.00 and 24.00 o'clock. The samples taken at 09.00 am were accepted as basal. The results of thyroid stimulating hormone (TSH), free triiodothyronine (fT3), free thyroxine (fT4), vitamin B12 (B12), folate, ferritin, follicle stimulating hormone (FSH), luteinizing hormone (LH), estradiol (E2), carbohydrate antigen (CA) 15-3, CA 125, CA 19-9 obtained at the different times of the day were statistically and clinically compared to the results obtained at 09.00 am. RESULTS:There was no clinically significant difference in fT4, B12, CA 15-3, CA 125 and CA 19-9 levels during the day. TSH, fT3, ferritin, FSH, LH, E2 and PRL had a variation up to (-27.37%)-(48.95%), (-5.59%), (-5.63%)-(-14.32%), (17.52%)-(-13.90%), (-9.14%)-(-23.52%), (-9.93%)-(-19.17%) and (-12.50%)-(-50.52%), respectively within the day. CONCLUSIONS:According to our study, TSH, fT3, ferritin, FSH, LH, E2 and PRL concentrations has a significant variation within day and the results of these tests should be interpreted according to these variations.
Keywords: Diurnal variation, hormone test, vitamin, tumor marker

PP-051
THE ROLE OF PROLIDASE ENZYME ACTIVITY, APOC2 AND MALONDIALDEHYDE LEVELS IN HYPERLIPIDEMIC CHILDREN

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OBJECTIVES:It was aimed to investigate correlation between serum prolidase activity, apolipoprotein C2 (ApoC2) and malondialdehyde (MDA) levels in hyperlipidemic children. MATERIALS and METHODS:Age and gender matched 40 patients and 40 healthy children with hyperlipidemia were included in the study. Prolidase enzyme activity was measured by modified Chinard method, MDA by thiobarbituric acid assay and ApoC2 by ELISA method. RESULTS:There was no significant difference between groups in terms of age and gender($p> 0.50$). Activity level of prolidase in our study was higher in the patient group($p<0.001$, $t=3.702$). ApoC2 level in the patient group was higher than the control group ($p<0.00$, $t=5,318$). There was a positive correlation between prolidase activity and ApoC2 in the control group ($0<0.001$, $r=0.486$) while there was negative correlation between prolidase activity and ApoC2 in the patient group ($p<0,05$, $r=0,486$). MDA level was higher in the patient group than in the control group ($p<0.001$, $t=3,317$). There was a significant negative correlation between MDA and ApoC2 in the patient group ($p<0,05$, $r=-0,329$). CONCLUSIONS:It was observed that hyperlipidemia leads to the formation and increase of oxidant molecules, and that lipid peroxidation increases the prolidase activity of MDA and peroxide group compounds. ApoC2, normally found in the structure of HDL, is found mostly in the hyperlipidemic structure of VLDL and LDL. We also observed a parallel relationship between VLDL-LDL levels and ApoC2 level in our study.
Keywords: ApoC2, hyperlipidemia, malondialdehyde, prolidase

PP-052
THE EFFECTS OF 8-WEEK OBESITY TREATMENT ON THYROID AND KIDNEY FUNCTIONS IN OBESE SUBJECTS

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OBJECTIVES:In this study, we aimed to investigate the effect of diet and exercise therapy on thyroid and renal function in obese and non-obese patients. MATERIALS and METHODS:Between November 2017 and May 2018, 37 patients who applied to a special physical therapy and rehabilitation center for obesity treatment were included in the study. Patients were divided into 3 groups according to body mass index (BMI). Diet and exercise therapy were applied for 8 weeks. TSH, free T3, free T4, BUN and creatinin levels were measured with Rosche COBAS C501 autoanalyzer in Eskisehir Osmangazi University Clinical Biochemistry Laboratory. Anthropometric characteristics of 37 individuals participating in the study were recorded. All values were evaluated before and after treatment. RESULTS:There weren't statistically significant difference between the beginning of the study and the measured values of BUN, creatinine, TSH and freeT4 at the end of the 8-week diet and exercise treatment($p> 0.05$). Although there is a statistically significant difference in free T3 values($p<0.05$), free T3 values is in normal values both before(2,95±0,41 mlU/ml) and after(2,77±0,39 mlU/ml) treatment. However, there was no statistically significant difference between the freeT3 values of the groups($p> 0.05$). CONCLUSIONS:There is no negative change in renal and thyroid function in the 3 groups after the 8-week calorie-restricted diet and exercise treatment.
Keywords: obesity, weight loss, thyroid functions, kidney functions

PP-053
DOES OBESITY INFLUENCE THE TEST RESULTS IN DIAGNOSIS OF PREDIABETES?

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OBJECTIVES:Diabetes mellitus (DM) has morbidity and mortality risks. Prediabetes indicates high blood glucose levels that aren't high enough to diagnosed as diabetes. HbA1C are used for prediabetes diagnosis. Superiority of other glycosylated proteins (glycated albumin (GA), fructosamine) over HbA1C have been discussed in prediabetes diagnosis. Obesity, a risk factor for diabetes, influences the diagnostic and follow-up tests for prediabetes (1-3). We aimed to assess the value of GA and HbA1c values in obese and non-obese individuals in prediabetes diagnosis. MATERIALS and METHODS:Individuals (126; 72 females, 54 males), admitted to the Endocrinology Clinic of AEAH (June 2017- June 2018), were included in this study. Groups (prediabetes, diabetes and insulin resistance) were sub-divided as obese and non-obese, according to their body mass index (BMI). GA levels were determined spectrophotometrically (DIAZYME GSP). HbA1C measurements were performed with (1) ion exchange chromatographic HPLC method (Agilent 1100 Series, NGSP-certified), (2) Abbott c8000 and (3) Roche Cobas 501 instruments. RESULTS:GA levels in diabetic patients were significantly higher than other groups ($p <0.001$). GA values were similar between insulin resistance and prediabetes groups ($p> 0.05$). There was positive correlation between BMI and HbA1c values (0.065) and negative correlation between BMI and GA values (-0.129). For HbA1C, the fit coefficients for Roche Cobas-Abbott, Roche Cobas-HPLC, and Abbott-HPLC were 0.826, 0.916 and 0.773, respectively. CONCLUSIONS:In evaluation of glycated protein results for diagnosis of prediabetes BMI should be considered. ROCHE Cobas instrument was found to have better concordance with the gold standard

HPLC test, compared to the Abbott analyser for HbA1C analysis.
Keywords: Diabetes mellitus, Prediabetes, Obesity, Glycated albumin

PP-054
ENDOCRINE REGULATION IN CHRONIC EXERCISE

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OBJECTIVES:Complex hormonal responses play a role in muscle adaptation mechanism after chronic exercise. Irisin, a protein released from the skeletal muscle after exercise and having thermogenic effects is a hormone with autocrine, paracrine, and endocrine effects. In this study, it was aimed to investigate the relationship between 4 weeks chronic exercise and hormonal response in athletes. MATERIALS and METHODS:30 male elite boxers were included to the study with similar age and BMI. Athletes were randomly divided into 3 groups as 10 athletes in each group and each group was subjected to different exercise programs for 4 weeks. Venous blood samples were taken at the end of the 1st week, 2nd week, 3rd week and 4th week, and serum levels of cortisol, TSH, free thyroxine (FT4), irisin levels and LDH levels were measured as indirect indicators of muscle damage. Serum irisin levels were measured by ELISA method. RESULTS:Serum irisin levels measured at the end of the third week and at the end of the fourth week were statistically significantly higher than the baseline levels. Statistical comparison with pre-study values showed that, LDH levels were at the highest level; cortisol, TSH and fT4 levels were at the lowest level at the end of the 3rd week. CONCLUSIONS:It was concluded that exercise had positive effects on metabolism and there was a significant hormonal response at 3 weeks of regular exercise. The hormonal response is thought to be a regulatory mechanism that plays a role in the process of muscle regeneration after skeletal injury
Keywords: irisin, exercise, endocrine regulation

PP-055
DETERMINATION OF PRESENCE OF MACROPROLACTIN IS IMPORTANT IN PATIENT WITH HYPERPROLACTINEMIA

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OBJECTIVES:Hyperprolactinemia is a state that is associated with galactorrhea, amenorrhea and infertility. Prolactin-immunoglobulin complex is called macroprolactin, which its' high levels may cause misdiagnosis in patients with hyperprolactinemia. Polyethylene precipitation is the mostly used method in determination of the presence of macroprolactin. The purpose of this study to investigate retrospectively clinician requests for macroprolactin in different two periods in our university hospital. MATERIALS and METHODS:The macroprolactin requests were investigated in Period 1 (2015-2016) and Period 2 (2017-2018) and compared. RESULTS:In period 1, the most frequently requested departments were endocrinology (58,64%), pediatric endocrinology (46,6%), internal medicine (35,7%), adolescent (30,3%) and medical oncology (27,9%). Only 2,47% samples were detected as macroprolactin positive and the 7,2% samples had %recovery that were <60%. In period 2 it was observed that the ranking was the same; however the psychiatry and neurology were in the forefront of medical oncology. It was found that the number of requests for all departments in the 2nd period increased by 8,1 -12,6 %. Furthermore, the 9,1 % samples were detected as macroprolactin positive, and %23,4 were had %recovery that were <60%. CONCLUSIONS:These results show that the number of test request and the number of departments that request macroprolactin increased with a high clinic compatibility.
Keywords: Macroprolactin, hyperprolactinemia, amenorrhea, galactorrhea, PEG

PP-056
CAN ANTIFOULING POLLUTANT SODIUM OMADINE BE AN ENDOCRINE DISRUPTOR?

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OBJECTIVES:Environmental pollutants, especially non targeted organisms, affect early stages of the growth. Control of biological contamination in water systems is provided by natural recruitment, physical removal and avoidance of the use of antifoulants. Sodium omadine (NaOM) is an environmental pollutant used for chemical control for antifouling organisms. Vitellogenin, the egg-yolk protein pioneer found in plasma, is a simple and sensitive biomarker for evaluating the exposure of male fish to environmental estrogens. The aim of this study is to determine the endocrine disruptor effects of sodium omadine via evaluating vitellogenin levels of male zebrafish. MATERIALS and METHODS:Male zebrafish were divided into 9 different groups; group1 (Control), group2 (NaOM (1 µg/L-24 h)), group3 (NaOM (5 µg/L-24 h)), group4 (NaOM (1 µg/L-72 h)), group5 (NaOM (5 µg / L-72 h)), group6 (NaOM (1 µg/L-96 h)), group7 (NaOM (5 µg/L-96 h)), group8 (NaOM (1 µg/L-1 week)), group9 (NaOM (5 µg/L-1 week)). Fish samples were taken under ice anesthesia after exposure. In order to evaluate vitellogenin levels, homogenates were prepared from total zebrafish and analyzed by ELISA commercial kit. RESULTS:When compared to the group1(11,47±5,49) of the group2(63,21±49,35), group3(298,23±31,77), group4(239,20±135,11), group5(250,54±107,37), group6(120,04±76,86) and group7(206,27±114,22); when compared to the group2 (63,21±49,35) of the group3 (298,23±31,77) were found to be statistically significant increased in vitellogenin levels(ng/mL) ($p<0.05$). Results were given as Mean±Standard Deviation. CONCLUSIONS:Men normally do not synthesize vitellogenin, but can be induced to excrete vitellogenin by estrogen administration or exposure to estrogenic chemicals. According to the results obtained, the concentration of vitellogenin increased with exposure to NaOM.
This study was partially supported by Gazi University Scientific Project's with the contravt number of 01/2017-31.
Keywords: Danio rerio, Na omadine, Vitellogenin, Zebrafish

PP-057
EVALUATION OF AMH LEVELS IN FEMALE PATIENTS USING SYSTEMIC ISOTRETINOIN WITH ACNE VULGARIS

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OBJECTIVES:Anti-Müllerian Hormone (AMH) is a hormone that plays an important role in the development of female and male embryonic genital organs in fetal life. In addition to this important role in the development of fetal reproductive organs, AMH also plays a critical role in the regulation of the functions of postnatal and adult reproductive organs. The only treatment option for all etiopathogenetic mechanisms is retinoic acids. The most commonly used retinoic acid derivative is isotretinoin. Systemic isotretinoin has a well-defined and frequent side effects, as well as some controversial side effects. The side effect of fertility has been discussed for a long time. In this study, we aimed to evaluate the pre- and post-treatment fertility parameters in patients using systemic isotretinoin by the diagnosis of nodulocystic acne. MATERIALS and METHODS:Forty-one female patients with systemic isotretinoin were included in the study. Anti-Mullerian hormone (AMH), ovarian volume (OH), antral follicle count (AFS), follicle stimulating hormone, luteinizing hormone, 6 months after the end of therapy parameters including estradiol and testosterone were evaluated. RESULTS:44 female patients were included in the study and all of them were in control until the end of the treatment. At the end of treatment, AMH, OH, AFS were statistically significantly lower than before treatment. There were no significant changes in other hormonal parameters. Patients were re-evaluated six months after the end of treatment. All of the fertility parameters that were significantly impaired before were returned to pretreatment values. This improvement in the parameters was statistically significant. CONCLUSIONS:The decrease in fertility caused by the direct toxic effect of systemic isotretinoin on the ovaries is eliminated by the loss of toxic effect in time and is not permanent.
Keywords: Anti-Müllerian hormone, female fertility, systemic isotretinoin

PP-058
CORRELATIONS BETWEEN INFLAMMATION MARKERS REQUESTED FROM THREE DIFFERENT SECTIONS OF THE HOSPITAL

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OBJECTIVES:Procalcitonin is recommended as a marker in sepsis or systemic inflammatory response syndrome. We examined correlations between procalcitonin and three other inflammation markers at three sections differing in patient profiles and therapeutic agents: internal medicine, intensive (reanimation) care unit, and intensive (second level) care unit through two months' accumulated data. MATERIALS and METHODS:We selected test results of simultaneously requested complete blood count (Sysmex XN series), plasma procalcitonin

(turbidimetric method, Diazyme Laboratories Inc.), and serum C-reactive protein (CRP, turbidimetric method, Beckman Coulter Inc.). Limit of quantitation is given as 0.2 ng/mL, and reference upper limit is given as 0.3 ng/mL in the insert for procalcitonin. Correlations between procalcitonin and immature granulocyte ratio (IG%), CRP were examined by Spearman's correlation analysis in the data set having procalcitonin in the interval of 0.3-10.0 ng/mL. RESULTS:The correlations between procalcitonin and CRP or IG% were as follows, respectively: at the internal medicine (procalcitonin at a median level of 0.81 ng/mL) r=0.317, p<0.0001, r=0.130, p=0.0104 (N=389); at the intensive (reanimation) care unit (median of 0.86 ng/mL) r=0.305, p<0.0001, r=0.302, p<0.0001 (N=184) and at the intensive (second level) care unit (median of 0.78 ng/mL) r=0.528, p<0.0001, r=0.436, p=0.0028 (N=45). CONCLUSIONS:Correlations between procalcitonin and IG% seemed more powerful at intensive care units. Depending on turbidimetric methodology, interference due to multi-drug use may probably affect the procalcitonin results in internal medicine. There may be need to compare diagnostic values of procalcitonin (turbidimetric) and IG%. In routine laboratory tests, complete blood count is frequently requested, and IG% is a parameter given estimated; being faster, cheaper and no need pretreatment of the blood samples brings advantage for IG%.
Keywords: immature granulocyte, procalcitonin, biomarker

PP-059
EVALUATION OF PROCALCITONIN AS AN INFECTION BIOMARKER IN INTENSIVE CARE PATIENTS

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OBJECTIVES:It was aimed to evaluate the use of serum procalcitonin (PCT) as an infection biomarker and to compare with CRP, erythrocyte sedimentation rate (ESR), neutrophil, lymphocyte and WBC count, calcium, total protein (TP) and albumin (Alb) levels in patients with possible septicemia or systemic inflammatory response syndrome (SIRS). MATERIALS and METHODS:A total of 65 patients [30 blood culture positive (Group 1) and 35 negative (Group 2)] were included according to the blood culture results. PCT, CRP, ESR, neutrophil, lymphocyte, WBC, calcium, TP and Alb values of these patients were obtained from the LIMS. PCT was measured on a Cobas e411; CRP, calcium, TP, Alb on Cobas 6000; CBC on Sysmex XN-1000; and ESR with an ESH Vision-B analyzer. RESULTS:PCT levels were increased significantly in Group 1 compared to Group 2 (p<0.05). Differences between the groups were assessed by Student's t test for normal distribution (calcium, TP, Alb), and by Mann-Whitney U test for non-normal distributed tests (PCT, CRP, ESH, neutrophil,lymphocyte, WBC). There was no significant difference between the levels of CRP, ESR, neutrophil, lymphocyte and WBC, calcium, TP, Alb. However, CRP revealed positive correlation with PCT (r = 0.458, p <0.001); whereas there were negative correlations between PCT and lymphocyte, TP and Alb (r=-0,424 p<0.001; r=-0,247 p<0.05; r=-0,360 p<0.001, respectively). Based on blood culture results,the sensitivity of PCT was 53% and the specificity was 71%. CONCLUSIONS:Higher specificity of PCT than other infection indicators is important for the early detection of a bacterial infection and antibiotic therapy.
Keywords: Procalcitonin, infection, emergency testing

PP-060
RETROSPECTIVE EVALUATION OF SEROPREVALENCE OF HEPATITIS E VIRUS (HEV)

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OBJECTIVES:Hepatitis E Virus (HEV) is an acute viral hepatitis infection that is usually transmitted by fecal-oral route. With this study, we aimed to contribute to the epidemiological data on the current seroprevalence of HEV in our country by determining the seropositivity of HEV in the Southeastern Anatolia Region. MATERIALS and METHODS:Between January 2012-2018, Anti-HEV IgM and Anti-HEV IgG antibody positivity of 5297 patients from different outpatient clinics of Dicle University Medical faculty were evaluated. Alanine Aminotransferase (ALT), Aspartate Aminotransferase (AST), Alkaline Phosphatase (ALP) and C-Reactive Protein (CRP) levels were examined retrospectively. Repeated results from the same patient were not included in the study.The relationship of anti-HEV IgM and anti-HEV IgG antibody positivity with age, gender and biochemical parameters (ALT, AST, ALP, CRP) was examined. RESULTS:Patients included in the study were studied in two groups: Anti-HEV IgM positive (Acute Hepatitis E) and Anti-HEV IgG positive (Previous Hepatitis E). Of anti-HEV IgM positive patients, % 54.1 were female and % 45.9 were male. ALT, AST and ALP were significantly higher in patients with acute hepatitis E (p <0,001),(p <0,001),(p <0,05); In the second group, a positive correlation between ALP and CRP was statistically significant (p <0.001). CONCLUSIONS:Acute Hepatitis E was detected in %2.8of cases. Need Diyarbakır, both of our environment cities Considering Patients from acute Hepatitis E ratio of %2.8Turkey average below. Significant positivity of biochemical parameters such as Alt, Ast, Alp are the indicators of liver damage. As a result, we think that the spread of HEV in our region is limited.
Keywords: HEV, HEV immunoglobulin M (IgM), Anti-HEV immunoglobulin G (IgG)

PP-061
VITAMN D LEVELS AND HEPATITIS B INFECTION:IS THERE ANY RELATIONSHIP?

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OBJECTIVES:Conducted studies have showed that vitamin D has very important biologic effects including cell differentiation, inhibition of proliferation and immune modulation. Vitamin D levels may affect the immune system and body's response to viral infections like hepatitis B. Our aim in this study was to see whether or not there is a relationship between vitamin D levels and hepatitis B. MATERIALS and METHODS:In this study, 460 patients (10 with positive HBsAg, 450 with negative-HBsAg) who admitted to Bilecik Government Hospital between January 2014 and May 2018 were screened retrospectively. In this retrospective study reviewed serological HBsAg and vitamin D results in the serum. Vitamin D levels were compared to all patients who underwent HBsAg seroclearance. RESULTS:Control (HbSAg (-)) and patient HbSAg (+) group consisted of 450 and 10 subjects, respectively. Although serum 25-hydroxy vitamin D levels were lower in HbSAg (+) group [14 (5-44) µg/L] group compared to controls [15 (5-84) µg/L], this difference was not significant (p=0.88). Also, ages of the participiants were similiar: HbSAg (+) group [38 (13-86) years], control group [51 (25-83) years] (p=0.056). CONCLUSIONS:The vitamin D levels were found lower in HbSAg (+) group patients while HbSAg (-) group patients had higher levels but this difference was not significant (p=0.88). Prospective, well-designed and controlled studies are needed to show vitamin D's effect on the course of chronic hepatitis B.
Keywords: Hepatitis B infection, vitamin D, immunity

PP-062
ASSOCIATION BETWEEN MONOCYTE, NEUTROPHIL, EOSINOPHIL, LYMPHOCYTE VOLUME LEVELS AND BEHCET'S DISEASE

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OBJECTIVES:Behcet's disease, also called Behcet's syndrome, is a rare disorder that can lead to chronic relapsing, systemic vasculitis and autoinflammatory disorder of unknown origin. The disease can lead to numerous signs and symptoms that may seem unrelated at first. They may include mouth sores, eye inflammation, skin rashes and lesions, and genital sores. The effects of Behcet's disease vary from person to person and may clear up on their own. Volume values of different types of cells of the immune system, such as lymphocyte, neutrophil and monocytes, can be related with autoimmune disorders including Behcet's disease. Therefore, the aim of the pre¬sent study was to evaluate the association of monocyte, neutrophil, eosinophil and lymphocyte volume values, which are widely available hematological marker, with disease in patients with Behcet disease as retrospective data. MATERIALS and METHODS:43 patients with Behcet disease aged 63.1±6.6 and 57 healthy control aged 63.6±9.1 years who admitted to the Polyclinic of Rheumatology in Faculty of Medicine of the Selcuk University have been included in the study. RESULTS:The lymphocyte volume levels were significantly lower in patients 85.76±5.21 compared with control group 89.44 ±4.65 (p=0.000). The eosinophil, monocyte and neutrophil volume levels were 157.67±11.46, 166.48±8.46, 145.05±8.37 respectively in patients group and 160.67±7.56, 169.50±6.96, 147.18±7.04 respectively in control group. There was no statistically significant difference between the two groups with respect to eosinophil, monocyte and neutrophil volume levels. CONCLUSIONS:According to this study's re¬sults, decreased lymphocyte volume values may be a potentially useful prognostic biomarker in patients with Behcet's disease.
Keywords: Behcet's disease, monocyte, lymphocyte, neutrophil, eosinophil

PP-063
THE RELATION BETWEEN TRYPTOPHAN AND KYNURENINE LEVELS AND DISEASE ACTIVITY IN RHEUMATOLOGIC DISEASE

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OBJECTIVES:Tryptophan(Trp) is an essential aminoacid that plays a key role

in cellmetabolism. In addition to the involvement in the structure of serotonin and melatonin, it enters the pathway of kynurenine(Kyn). The pyrrolering of tryptophan is oxidized and N-Formylkynurenine is formed. After that, Kynurenine is metabolized to antranilicacid and kynürenicacid. Indolamine2-3dioxygenase(IDO), commonly found in many tissues and known to have an active role in regulating cellular immuneresponse has a role in the destruction process of tryptophan to kyürenine. It is thought that increased levels of kynurenine with degradation of tryptophan to kyürenine and changes in the Kyn/TRP balance are shown immunological activity. The aim of our study was to compare Trp and Kyn levels in healthy control group with PrimarySjögren'sSyndrome(PSS), PsoriaticArthritis(PSA) and RheumatoidArthritis(RA) patients and to evaluate the correlation with disease activity.
MATERIALS and METHODS:According to the Classification criterias, patients diagnosed as PSS(n=20), RA(n=20) and PSA(n=18) and healthy control group(n=13) were included in the study. Serum levels of TRP(mmol/L) and KYN(mmol/l) were measured using HPLC.
RESULTS:The mean and standard error values of the control group were Trp(0.0511±0.0032) and Kyn(0.190±0.0376), PSS(0.0417±0.0025, 0.0198±0.0005 respectively), RA(0.0418±0.0018, 0.0262±0.00065 respectively) and PSA(0.0482±0.0022, 0.0393±0.0036 respectively). The Kyn/Trp values of the groups were calculated as respectively 3.660±0.651, 0.525±0.047, 0.653±0.035, 0.857±0.099.
CONCLUSIONS:Trp and Kyn have been shown to play an important role in the pathogenesis of rheumatologic diseases. We observed that the Kyn/Trp values in the patient groups decreased at statistically compared to the control group. The results show reduced activity of IDO and indicate suppressed immunity in disease groups.
Keywords: Tryptophan, Kynurenine, Rheumatologic Diseases, HPLC

PP-064
IN VITRO AND IN SILICO INVESTIGATION OF THE INHIBITORY EFFECTS OF SOME FLAVONOIDS ON TYROSINASE

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OBJECTIVES:Flavonoids are widely distributed in plants and form the most common group of polyphenolic compounds in human diet. Tyrosinase is a crucial enzyme in melanin biosynthesis in mammals, bacteria, plants, and fungi. It is known that melanin protects the skin from UV damage but its excessive production causes freckles, melasma, skin cancer, and age spots. In this work, we aimed to investigate in vitro and in silico tyrosinase from mushroom inhibitory effects of some structurally related nine flavonoid compounds isolated from different plants.
MATERIALS and METHODS:The inhibitory properties of the compounds against tyrosinase were investigated spectrophotometrically using L-DOPA as a substrate. The inhibitory types and inhibitory constant values of the compounds were analyzed using Lineweaver-Burk and Dixon plots. The 3-D coordinates of mushroom tyrosinase (PDB ID: 2Y9X) was downloaded from RCSB Protein Data Bank and molecular docking studies were performed using Glide (Schrödinger, LLC, NY, 2018).
RESULTS:The IC50 value of quercetin was determined as 40.94 ± 0.78 µM against tyrosinase. Kaempferol and isorhamnetin 3-O-β-glucopyranoside inhibited tyrosinase via competitive manner, whereas quercetin 3-O-β-galactopyranoside is non-competitive inhibitor. According to the docking studies, A and C rings of the flavonoid structure, hydroxyl substituent at the 7th position, and hydroxyl substituents at meta and/or para position of ring B have been shown to play a key role in competitive inhibition of the enzyme.
CONCLUSIONS:The results suggested that the compounds have potency to become tyrosinase inhibitor drug candidate.
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Keywords: flavonoids, mechanism, molecular docking, tyrosinase.

PP-065
POLICYSTIC OVER SYNDROME AND HOMOCYSTEİNE THIOLACTONASE, PARAOXONASE, ARYLESTERASE ENZYME LEVELS

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OBJECTIVES:The paraoxonase (PON-1) in the structure of HDL cholesterol has paraoxonase (PON), arylesterase (ARE) and homocysteine thiolactonease (HTLase) activities. In this study we aimed to measure the HTLase, PON and ARE activities in obese, overweight and normal weight patients with policystic over syndrome (PCOS) and healthy individuals and to evaluate the method performance characteristics.
MATERIALS and METHODS:Study group consisted of 20 obese, 20 overweight and 20 normal weight patients with newly diagnosed PCOS and 30 healthy control subjects. Fasting blood samples were drawn and homocysteine (Hcy) was measured by chemiluminescent immunoassay (Siemens Advia Centaur XP), HTLase and PON activity was measured on a Beckman Coulter AU 680 analyzer, ARE activity was measured on a Shimadzu UV-spectrophotometer (UV-1700, Shimadzu Corparation, Japan).
RESULTS:The activity of HTLase, PON and ARE were found statistically significantly lower in PCOS patients compared to control group ($p<0.001$ for all). Whereas Hcy consentration was significantly higher in PCOS patients (regardless of subgroups) than healthy subjects ($p<0.001$). There was a negative correlation between HTLase activity and Hcy ($r= -0.342$, $p = 0.001$).
CONCLUSIONS:Hcy concentrations are higher and HTLase, PON and ARE activities are lower in patients with PCOS. Increased Hcy values show that the atherosclerotic process is accelerating. Decreased HTLase, PON and ARE activities contribute to the development of atherosclerosis. The reduction of serum Hcy levels may have importance for the prevention of cardiovascular disease in PCOS patients. Measurement of HTLase, PON, and ARE activities in these patients might be helpful to evaluate the atherosclerotic process.
Keywords: policystic over syndrome, homocysteine thiolactonease, paraoxonase, arylesterase

PP-067
EFFECT OF HISTONE MODIFICATION INHIBITORS ON HOX TRANSCRIPT ANTISENSE RNA

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OBJECTIVES:Liver fibrosis is a common pathological condition that is caused by chronic liver injury and progressive hepatic stellate cells (HSCs) play a key role. The activation of silent HSCs in liver fibrosis leads to the release of more extracellular matrix (ECM). Long non-coding RNAs (lncRNAs) is important in regulating various biological processes. HOX transcript antisense RNA (Hotair) is one of the lncRNAs interacting with the polycomb complex (PRC2) in the progression of critical diseases. Recent studies have shown that lncRNAs are important in epigenetic modification. In our study, we aimed to compare the effects of the epigenetic modifications on the gen of Hotair, Enhancer of Zeste Homolog2 (EZH2) in the human HSC cell line (LX-2) by using histone deacetylase inhibitor Suberoilanilide Hydroxamic Acid (SAHA) and histone methyl transferase inhibitor 3-DeazaneplanocinA (DZNep)
MATERIALS and METHODS:Gene expression level was determined by Real Time PCR
RESULTS:SAHA statistically decreased Hotair and EZH2 gene levels in LX-2 cells ($p<0.001$, $p<0.001$) and also DZNep statistically decreased Hotair and EZH2 gene levels ($p<0.023$, $p<0.03$).
CONCLUSIONS:DZNep has been shown to be an EZH2 inhibitor and the same effect has been demonstrated in SAHA. In our study, the inhibition of EZH2 and Hotair genes by FDA-approved SAHA and DZNep is an important finding because both gene bind to PRC2, H3K27 leads to epigenetic silencing of suppressor genes. For this reason, there is a relationship between these two genes. These results suggest that SAHA and DZNep may be a promising therapeutic option for suppressing liver fibrosis.
Keywords: SAHA, DZNep, Hotair

PP-068
GOJI BERRY INCREASES THE INHINITORY EFFECT OF L-CARNITINE AT CHRONIC MYELOID LEUKEMIA

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OBJECTIVES:L-carnitine (LK) transports long-chained fatty acids into the mitochondrial matrix for ATP generation. The LK application for several cancer types including acute myeloid leukemia (AML) shows inhibitory effect via apoptosis induction. A Chinese medical dietary supplement as Goji berry (GB) with an antioxidant and apoptotic effects is used to treat various cancer types including leukemia. In our study, we targeted to investigate the effects of the combination of GB with LK on chronic myeloid leukemia (CML) with their signal transduction pathway.
MATERIALS and METHODS:Antioxidant capacity known GB fruits' extracts were applied to K562 leukemia cells in single and in combination with LK for 72 h. The effects of these applications were determined by cell number, cell viability and apoptotic cell rate (flow cytometry), the levels of apoptotic (Caspases-3,8,9, bax) and anti-apoptotic (bcl-2) proteins (ELISA). Anova test was used and $p<0.05$ was accepted statistically significant.

RESULTS:Highest decrease at cell number and viability were found at the combination group (PGB+LC<0.05). The combination group led to the highest increase in apoptotic cell rate in concomitant with the highest increase in the levels of caspases-3,8 (PGB+LK<0.05). GB decreased cell number with cell viability potently after the combination group through the increase of caspase-3 levels via the highest increase in caspase-9 with bax levels and the highest decrease in bcl-2 levels (PGB<0.05). LK showed the lowest inhibitory effect on cell number with the highest cell viability (PLC<0.05). LK led to the lowest increase in apoptotic cell rate through the lowest increase in the levels of caspases-3,8 (PLK<0.05). CONCLUSIONS:In the current study, it's detected firstly that the combination of GB and LK have a proliferation inhibitory effect on CML cells via extrinsic apoptosis.
Keywords: Gojiberry, L-Carnitine, Chronic Myeloid Leukemia, Fatty acids, Apoptosis

PP-069
THE LEVELS OF SERUM CITRULLINE IN PREGNANCY

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OBJECTIVES:Citrulline produced in the small intestines as a result of the metabolism of the amino acids(glutamine,proline and glutamate etc.) taken into the body and plays a primary substrate role in the synthesis of arginine.The systemic circulation of the citrulline is then passed through the kidneys and transformed into arginine in the proximal tubules.Asymmetric dimethylarginine(ADMA) is catabolized by DDAH enzyme citrulline and dimethylamines.Therefore,as in the pathogenesis of many diseases,there is a relationship between reduced serum arginine concentrations or increased ADMA concentrations and citrulline metabolism in pregnancy complications. Therefore,we aimed to determine the levels of citrulline in the sera of pregnant participants who were tested for the quadruple and binary test MATERIALS and METHODS:In this study, a total of 200 pregnancy woman were enrolled. These individuals were divided into four groups as the control group with quadruple test(n=50)(Group 1),high risk group with quadruple test(n=50)(Group 2), control group with binary test (n=50)(Group 3) and high risk group with binary test (n=50)(Group 4).In each group,serum cıtrulline levels and were measured with lıquıd chromatography-tandem mass spectrometry (LC-MS/MS)(ABSCIEX API 3200).
RESULTS:Serum citrulline levels [40(10-88)] in Group 1 were higher than Group 2[35.2(10-94)],but this difference was not statistically significant(p=0.726). Serum citrulline levels in group 3,were significantly lower than group 4[44.8(13-122)](p=0.000).
CONCLUSIONS:The presence of citrulline concentrations at similar levels tested in the quadruple test groups (Groups 1 and 2) suggests that this parameter may not be a good predictor of risky pregnancies.To clarify this, there is a need for additional study to be done during pregnancy related to arginine and its methylated derivatives.
Keywords: pregnancy,methylarginine,serum cıtrulline

PP-070
INVESTIGATION OF HOMOCYTENE LEVELS IN WOMEN WITH INFERTILITY DIAGNOSIS

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OBJECTIVES:Infertility is defined as the condition in which the woman is unable to conceive despite regular sexual intercourse for at least one year if no protection is used. The rate of infertility varies between 8-12% in the world and 10-20% in our country. Infertility is a health problem that has spread over a long period of time,has been suffering from excessive stress and has forced compliance mechanisms. As a result of deficiency of vitamin B,which is one of the most important vitamins for our body,homocysteine levels increase and the methylation of protein,DNA,RNA and repair processes are affected. In this study,the role of homocysteine levels in women treated with infertility treatment was investigated. MATERIALS and METHODS:The study was carried out between 2015 and 2016 by N.E.U. A retrospective study was conducted on the homocysteine levels of 957 patients referred to Meram Medical Faculty gynecology polyclinic due to infertility. A total of 396 women in 2015 and 561 women in 2016 participated in the study. The age range of women participating in the study was taken as 15-44. RESULTS:The values of homocysteine levels measured in 2015 and 2016 were 7.72±4.02 and 7.31±2.62 respectively. Homocysteine levels of 177 (36%) of 489 patients were found to be below normal range for two years. CONCLUSIONS:It was observed that homocysteine alone was not enough in the diagnosis of infertility which pathophysiology was not known. The mechanism of the vitamin B group involved in the homocytic metabolism is examined and the mechanisms of infertile individuals should be fully elucidated.
Keywords: infertility, homocysteine, B group vitamins

PP-071
OXIDATIVE STRESS RELATIONSHIP OF CIGARETTE IN INFANTS,PLACENTA AND MATERNAL PERIPHERAL VENOUS BLOOD

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OBJECTIVES:Smoking is increasing in women and pregnancy. Prooxidants and oxidants are formed after exposure to cigarette smoke initiate oxidative damage of free radicals and lead various degenerative disease ingluding cansers.The are few studies evaluating oxidative stress,but no studies have been conducted to evaluate the antioxidative levels resulting from human placental exposure to cigarette.İn our study,peripheral venous blood,placental tissue and oxidative stress parameters in cord blood infants were compared with contol group which wasnt exposed to cigarette. MATERIALS and METHODS:Study included 60 fullterm infants divided into 3 group depending on exposure to cigarette smoke during pregnancy.Total oxidant level (TOL) and antioxidant level (TAL) of peripheral venous blood in the umbilical cord blood of infants and placental tissue were studied by O.Erels method.Ratio of TOL to TAL was regarded as an oxidative sterss index(OSİ). RESULTS:TOL of active smokers were higher than passive smokers and significantly higher than the control group where TAL of active smokers were lower than passive smokers and control group.OSİ levels in peripheral blood of active smokers in placental tissue and in cord blood of their infants were significantly higher than those of passive smoker and control group.mother,placental and infant cord boood. CONCLUSIONS:Study showed that exposure to cigarette in pregnancy leads to significant oxidative stress increase in both mother and baby. Exposure to cigarette should be avoided during pregnancy and antioxidants sholud be supplemented if exposure to cigarette is detected.
Keywords: Pregnancy,cigarette,placental tissue,oxidative stress

PP-072
DEVELOPMENT OF ARTIFICIAL PLASTIC RECEPTOR MODIFIED SENSOR FOR CARDIOTROPIN DETECTION

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OBJECTIVES:In this study, the three-dimensional structure of cardiotrophin (CT-1) protein was used as a template to synthesize plastic receptors at the surface of a platinum electrode by molecular suppression technique (MIT). MATERIALS and METHODS:Acrylamide (4mg) was chosen because of the interaction of carbonyl and amine groups on CT-1 as monomer molecules for molecular imprinting. In the polymerization step, 1 mg of CT-1 together with ammonium persulfate (10mg) was dissolved in 100µL of pH = 7.4 phosphate buffer, then rapidly plated onto the platinum electrode surface and UV polymerised at 4 ° C. The acrylamide polymerisation process was investigated by electrochemical impedance spectroscopy (EIS). The surface resistance measured by EIS was increased by MIT coating on the platinum electrode surface. Then, CT-1 was removed from the surface by soaking electrode 10% oxalic acid solution, for 1 hour. Resistance was reduced because CT-1 was removed from the surface and cavities binding CT-1 on the surface were released. Each step of electrode modification and CT-1 measurement was examined by EIS. RESULTS:Calibration graphs between 140 µg/mL and 800 µg/mL show linearity with 11 standard charts (R2 = 97.14±0.42) plotted for the performance of the developed sensor system. Sensitivity values of 500 µg/mL were shown to be 512±3 µg / mL (n=6) in serum samples containing albumin, urea, glucose, calcium and 500 µg/mL CT-1. CONCLUSIONS:As a result, the sensor system gave a linear and accurate signal to the CT-1 molecule. The sensor gave a deviation value of close to 3% as matrix effect.
Keywords: sensor, molecular imprinting, cardiotropin, impedance

PP-073
COMPARISON OF FIXED AND RAMPING VOLTAGE SHOCKWAVE LITHOTRIPSY WITH KIDNEY INJURY BIOMARKERS

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OBJECTIVES:Our aim was to compare ESWL-induced kidney

injury in patients undergoing different ESWL protocols by measuring urinary tissue metalloproteinase-2 inhibitor (TIMP-2) and insulin like growth factor binding protein 7 (IGFBP7). MATERIALS and METHODS:This study was conducted in Group 1 patients undergoing ESWL with fixed voltage, Group 2 patients undergoing ESWL ramping voltage. Before ESWL and 4 hours after ESWL urinary TIMP-2, IGFBP7 levels and before ESWL and 1 week after urinary beta-2 microglobulin (β2-MG) and albumin were analyzed to assess renal damage. The primary outcome point was the comparison of the effect of ESWL on early renal damage with biochemical markers in the different treatment protocols and the secondary outcome point was the comparison of the two treatment protocols in terms of stone-free rate and complications. RESULTS:There were difference between the serum creatinine, e-GFR values at baseline and one week after treatment ($p < 0.05$). There was no significant change in serum urea, urinary β2-MG and albumin values before and after ESWL. In both groups, urinary TIMP-2, IGFBP7 and TIMP-2 x IGFBP7 levels a significant increase compared to baseline ($p <0.05$). There was no difference between the rates of stone-free and complication among the groups ($p <0.05$). CONCLUSIONS:We observed a significant increase in TIMP-2, IGFBP7 and combination levels after ESWL treatment in both groups, indicating that two biomarkers could be used to identify acute kidney damage due to ESWL. However, the comprehensive evaluation of parameters and urinary markers didn't differ renal injury, success, and complications after ESWL in both protocols. Keywords: Extracorporeal shock wave lithotripsy, Urolithiasis, Acute Kidney Damage, Biomarker

PP-075
A CARRY-OVER STUDY IN COBAS U 701 AND U 601 AUTOMATIC URINE ANALYZERS

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OBJECTIVES:The error induced in the result of a specimen by contamination from the preceding one is called as carry-over. In general, carry-over studies have been performed for chemistry and immunochemistry analyzers. There are few studies investigating the carry-over in automated urine analyzers. This study investigated the failures due to carry-over for Hb, leukocyte esterase (LE), protein, erythrocyte (RBC) and leucocyte (WBC) in Roche Cobas u 701 and u 601 urine devices. MATERIALS and METHODS:In this study, we prepared two different urine pools from routine urine specimens. One of the pools contained high amounts of RBC, WBC and protein (H) and the other one contained very low (L). In these pools, Hb, LE and protein were evaluated chemically; RBC and WBC were evaluated microscopically. Concentrations of pools were measured as 0.40/hpf; 0.60/hpf for L-RBC and L-WBC and 816.9/hpf; 227.1/hpf for H-RBC and H-WBC, respectively. The pools were studied with the following arrange automatically: L-L-L-H-H-L-H-H-L-L-L-L-H-H-L-H-H-L-H-H-L. RESULTS:Chemical analysis of Hb, LE and protein showed no carry-over. The mean values of low specimens for RBC and WBC sediment analysis on microscopic examination were 0.32/hpf; 0.51/hpf after L pool and 0.20/hpf; 0.54/hpf after H pool, respectively. CONCLUSIONS:Carry-over can significantly affect the performance of the device in automated analysis. For this reason, carry-over errors must be identified in terms of patient safety. It has been determined that there is no carry-over error for Hb, LE, protein, RBC and WBC in the Cobas u 701 and u 601 analyzers used in our laboratory. Keywords: Carry-over effect, Urine analysis, analytical quality

PP-076
DEVELOPMENT OF UPLC MS MS METHOD BASED FOR THE DETERMINATION OF CORTISOL IN HUMAN SERUM AND SALIVA

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OBJECTIVES:Nowadays, problems people faced at work, at home etc. are the main cause of psychological stress. Prolonged stress exposure creates a series of signaling pathways leading to the release of adrenal cortex cortisol from the brain. Addition there are many biomarkers related to psychological stress, the most important is cortisol. While excess cortisol levels may contribute to the development of Cushing's disease, reduced levels of cortisol may cause Addison's disease. The main objective of this study is to develop a fast,sensitive LC MS MS method to measure cortisol in both serum and saliva. MATERIALS and METHODS:Firstly, the effect of some preliminary processes on measurement was investigated. Organic solvents used in liquid-liquid extraction were compared in terms of matrix effect and recovery in both serum and saliva samples. The method that using D4-Cortisol as the internal standard, chromatographic separation was performed using gradient elution with a mobile phase consisting of methanol and 0.05% formic acid in a column of Acquity UPLC BEH C8. RESULTS:It was observed that using ethyl acetate from the organic solvents used in the liquid-liquid extraction method resulted in better results. The linear range of the method is 0.018-120 ng/ml and the detection limit is 0.007 ng/ml. Intra and inter assay values for low, and medium and high levels are less than 5%. Recovery is found between 95-103% for serum and between 98-102% for saliva. CONCLUSIONS:With the developed method, cortisol was detected in serum and saliva (n=30) samples and results were compared with the results obtained by ELISA and Chemiluminescenceimmunoassay (CLIA). Developed LC-MS/MS method was established for cortisol quantification in human serum and saliva. This methodology characterized by high sensitivity (LOQ = 0.018 ng/mL) and fast measuremet time (5 min). Keywords: Cortisol, saliva, serum, LC MS MS

PP-077
THE COMPARISON OF FLOROMETRIC AND COLORIMETRIC PROTEIN QUANTIFICATION METHODS

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OBJECTIVES:The protein quantification is necessary in many scientific fields. There are different methods for protein quantification. In this sense, various colorimetric and fluorometric tests are available. The specificity of these tests may vary, which affects the subsequent experiments. In this study, it was aimed to compare two different protein quantification methods by using protein isolates from brain tissue. MATERIALS and METHODS:Previously prepared tissue protein isolates were quantified by using the Qubit instrument based on fluorometric measurement or bicinchoninic acid (BCA) protein kit based on the colorimetric assay. In the fluorometric measurement, the tissue isolates diluted in various ratios were incubated for 15 minutes with Qubit florometric dye and the amount of protein was determined by the self-instrument loaded with standard proteins. In the case of BCA chitin measurement, standard samples of the standard proteins and diluted isolate samples in various ratios were measured by the appropriate wavelength ELISA and quantities of unknown proteins were determined. RESULTS:The amount of protein in the Qubit instrument was found as an average of 30.733±611 ug / ml, while in colorimetric quantification with BCA kit, it was found as an average of 16.375±1496 ug/ml with BCA kit. CONCLUSIONS:The colorimetric method for protein quantification gives lower values when compared to fluorometric method in brain tissue isolates. Therefore, every laboratory needs to make its own optimization in protein quantification. Keywords: The protein quantification, fluorometric test, colorimetric test

PP-078
INVESTIGATION OF THE ACTIVITIES OF PROLIDASE IN THE PATIENTS WITH PSORIASIS

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OBJECTIVES:We aimed to indicate potent role of prolidase activity, representing the metabolism of collagen proteins, in psoriasis, therefore we investigated the serum prolidase activity of the patients with psoriasis and the healthy group. Also, whether there is a relationship between prolidase activity and complete blood cell count parameters has been investigated. Sharply-circumscribed and ingrained in erythematous plaques or papules, psoriasis is considered as a remitting skin disease whose etiology is regulated by genetic and immunologic mechanisms. MATERIALS and METHODS:We included 40 patients whom clinically diagnosed as chronic moderate and severe plaque type psoriasis among the patients applied to Gaziantep University Medical Faculty Research and Practice Hospital and; and 50 healthy people with any systemic disease and don't use alcohol, cigarette and medication. Within the scope of study, the serum prolidase levels of the participants were investigated by Chinard method. RESULTS:According to the findings, serum prolidase level of the patients was determined to notably increase compared with the control group ($t=8,075$; $p<0,0001$). Upon assessing whether there is a relationship between prolidase activity and complete blood count parameters, a weak positive correlation was found. High rate of Lymphocyte was thought to explain this correlation ($r=0,105$; $p<0,0001$). CONCLUSIONS:The prolidase activity of the patients was determined to be inversely correlated with lymphocyte rate, which give rise to thought on the relationship between prolidase activity level and tissue destruction. Having already been performed, the studies are supportive of our results. New studies in this field will become more of an issue to lighten the pathogenesis of psoriasis. Keywords: Chinard, Lymphocyte, Psoriasis, Prolidase, Whole blood.

PP-079
THE RELATIONSHIP BETWEEN PROLIDASE ENZYME ACTIVITY, IGE AND EOZINOPHIL LEVELS IN ALLERGIC CHILDREN

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OBJECTIVES:Asthma diseases such as allergic rhinitis, asthma, allergic dermatitis and atopic eczema are among the most common causes of chronic diseases. The prevalence of these diseases is increasing day by day. Prevention and early recognition of these diseases are important. In this study, we aimed to investigate the effect of prolidase activity on allergy patients and the relationship with IgE and eosinophilia. MATERIALS and METHODS:Blood samples were collected from 40 allergy patients and 40 age and sex-matched healthy children. Prolidase activity was measured by Chinard method, IgE by ELISA method and eosinophil by flow cytometry. RESULTS:There was no significant difference in age and gender between the two groups (p> 0.05). VKI was lower in allergy than control (p <0.05). Prolidase activity, IgE and eosinophil levels were found to be higher in the allergy group than in the control group. There was no statistically significant relationship between prolidase and IgE and eosinophil in allergy group (p> 0,05), but there was a positive correlation between IgE and eosinophil (p <0.05). CONCLUSIONS:In addition to the IgE and eosinophil levels routinely evaluated in the diagnosis of allergy, the increase in prolidase activity is becoming increasingly important. We believe that the increase in prolidase activity may be used as a differential criterion for distinguishing asthma as an allergic or asthma that develops after recurrent bronchitis. Because of the decrease in prolidase activity in asthma due to chronic bronchitis, the production of collagen tissue is increased, whereas prolidase activity is observed to be increased in allergic asthma cases.
Keywords: Allergy, prolidase, Immunoglobulin E, Eosonophil

PP-081
THE ASSOCIATION OF TRYTOPHAN-KYNURENINE LEVEL AND DISEASE ACTIVITY OF MILD AND MEDIUM/SEVERE OSAS

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OBJECTIVES:The kynurenine pathway may play a role in certain physiological functions such as behaviour,sleep, thermoregulation and pregnancy. Tryptophan is oxidized with tryptophan 2,3-dioxygenase and indolamine 2,3-dioxygenase (IDO).Under normal conditions, hepatic kynurenine is a transcription factor and IDO expression in healthy tissues is very low.The ratio of kynurenine to tryptophan can be used as an indicator to assess IDO activity.This preliminary study aimed to determine the relationship between tryptophan kynurenine levels and disease activity. MATERIALS and METHODS:In group 1,18 (10 female, 8 male) patients with mild OSAS and in Group 2,18 (3 female, 15 male) patients with medium/severe OSAS were included in the study.The demographic characteristics of the patients were recorded. Apnea-hypopnea indices (AHI) and pO2 saturation measurements were performed by diagnostic polysomnography (PSG). Tryptophan and kynurenine levels were determined by HPLC-UV method. RESULTS:The mean age and BMI of both groups (46,19±11,93, 29,24±4,07respectively) were calculated.There was a statistically significant difference between the two groups in terms of AHI (7,03±4,53 36,02±18,67,p<0,001).pO2 (11,62±22,31 21,05±25,01,p>0,245) were not statistically different between the values of saturation. Tryptophan and kynurenine levels were determined 0,45±0,16 and 0,003±0,002 for Group1. There was no difference between the groups when calculated as 0,46±0,20 and 0,003±0,002 for Group 2 (p>0,100,p>0,868 respectively).When the Kyn/Trp ratio was calculated, there was a statistically significant difference between Group1 and 2 no difference was onserved(p>0,659).There was also no significant correlation between BMI and Kyn/Trp (r= -0,156, r= -0,037 respectively) in patients with mild OSAS and moderate-severe OSAS. CONCLUSIONS:İn this study, where the association of disease activity and immunoreactivity was assessed with IDO activity in different severe OSAS patients, there was no relationship between disease activity and immunoreactivity via the tryptophan /kynurenıne pathway.. It will be appropriate to evaluate the correlation between the Kyn / Trp ratio and BMI in patients with OSAS by increasing the number of cases.
Keywords: OSAS, Tryptophan, Kynurenine

PP-082
THE IMPORTANCE OF HB VARIANT ANALYSIS IN ASYMPTOMATIC PEOPLE: HB D-PUNJAB

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OBJECTIVES:HbDPunjab(HbDP)is one of the most common hemoglobin variants worldwide,after HbS and HbC.HbDP is a variant derived from a point mutation in the beta globin gene in the first base of the 121 codon(GAA→CAA)with the substitution of glutamine for glutamic acid (Glu>Gln)in the beta globin chain.People with HbDP are usually asymptomatic. MATERIALS and METHODS:A42yearold female patient applied to the checkup polyclinic of Gazi University Hospital.The patient's biochemistry and hormone tests were analyzed in autoanalysers of the BeckmanCoulter AU,DXI series.HbA1c and the requested variant analysis as a reflective test were performed on the BioRad Variant2Turbo device. RESULTS:All of the biochemistry,hormone,hemogram and HbA1c results of the patient's were within the reference ranges.The fasting blood glucose and HbA1c of the patient were 84 mg/dL(74-100)and%4.6(4,3-6,1)respectively. On the device analysis screen,at the end of the HbA1c peak at 4.14min(D-window),an abnormal peak covering%37.3 of the area was observed.When the abnormal peak retention time was entered into the variant library of Biorad,it was concluded that the result is compatible with HbDP.Variant analysis was performed on the sample,in order to verify that HbD could coexist with other abnormal variants.The analysis of variance,there were no abnormal peak except HbD.The clinician was informed that Hb variant was detected in the patient,but it didn't interfere with HbA1c during the measurement. CONCLUSIONS:Although not always associated with relevant clinical history HbDPisarelativelycommonhemoglobinworldwide.Thisvariantcanbeseentogether with variants such as HbS which can be seen frequently and give clinical indication. When this is detected,variant analysis should be performed as a reflective test.
Keywords: HbD-Punjab, interferance, reflective test

PP-084
TRACE ELEMENTS IN AMONIUM LIQUIDS WHICH A DOWN SYNDROME IS DETERMINED

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OBJECTIVES:Amniotic fluids taken pregnant women which identified as normal and Down syndrome were studied indicating differences between trace elements parameters. Trisomy 21 is one of the most common chromosomal abnormalities that accompany characteristic physical and neuropsychological findings, such as mental retardation, language and memory problems in humans. MATERIALS and METHODS:Materials used in this study; Kahramanmaras Sutcu Imam University Research and Practice Hospital consists of amniotic fluid samples obtained from amniocentesis between 16th and 20th gestational weeks from pregnants who applied to gynecology policlinic. In this study, the levels of trace elements were compared between 235 gestational amniotic fluid and 9 down syndrome gestational amniotic fluid.Patient groups with DS were taken amniotic fluid of pregnant women who were at risk in the dual and triple tests performed under ultrasound guidance. The results of the karyotype analysis indicated that they were sick. Trace element analyzes were determined by graphite and flame spectrometry methods using atomic absorption apparatus. RESULTS:No statistically significant difference was found between Down syndrome and normal groups (p> 0,05). However, zinc, copper and selenium levels were higher in the control group than in the down syndrome group. CONCLUSIONS:Zn, Cu and Se levels were found to be higher in the control group than in the down syndrome groups, but it is considered necessary to increase the number of patient groups and to carry out further studies in order to understand the changes in trace element and antioxidant system in amniotic fluid from pregnants included in control and patient groups..
Keywords: Down syndrome, Trace element, Amniotic fluid

PP-085
INVESTIGATION OF ZINC LEVELS IN CHILDHOOD

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OBJECTIVES:Zinc is one of the minerals that are important for our health and are taken with external foodstuffs. It is found in the structure and function of approximately 300 enzymes to play a major role in DNA replication and mRNA transcription.Zinc deficiency in children; frequent recurrent infections, skin disorders, growth and development disorders, immune system disorders, hair dandruff and shedding causes such disorders. When

zinc is considered, it is determined that zinc deficiency occurs in the children of families in low socioeconomic regions due to unleavened bread and insufficient meat consumption. The aim of this study is to investigate zinc levels in children in Konya region in terms of gender, age and zinc deficiency. MATERIALS and METHODS:Study The zinc values of 133 female and 133 male children aged between 2 and 12 years who presented to the pediatric outpatient clinic of N.EU Meram Medical Faculty in 2015 and 2016 were examined retrospectively. Zinc analysis was performed on Rayleigh brand WFX-320 atomic absorption spectrophotometer. A statistical evaluation of the results was made. RESULTS:Zinc value was found to be 11.51 ± 2.82 in 11.40 ± 3.26 boys. While the zinc values of 79 female patients (59%) were between the reference values, this rate was 72 (54%) in male children. The mean age of the girls was 6.03±2.25 and the mean age was 6.40 ± 3.26. CONCLUSIONS:Zinc is known to have important functions in human metabolism. However, the importance of children in the development period is increasing. These results show that children who are in development period should be treated more carefully and meticulously. In addition, the immune system can be strengthened and resistance to diseases can be increased.
Keywords: pediatric diseases, zinc levels, Konya region

PP-086
THE EVALUATION OF MEASUREMENT UNCERTAINTY FOR GLUCOSE, CREATININE AND HbA1C TESTS

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OBJECTIVES:According to the test results measured in the clinical biochemistry laboratory, clinicians make clinical decisions pertaining to their patients. For this reason, the correct test result is of prime importance in terms of diagnosis and treatment. Measurement uncertainty is an important parameter that indicates the distribution of tests. There are different methods for measurement uncertainty calculation. One of these is top to bottom model. In our study, calculating the measurement uncertainties of glucose, creatinine and HbA1c tests was aimed. MATERIALS and METHODS:The measurement uncertainties of glucose, creatinine and HbA1c tests studied in the Roche Cobas 511 device, which is available in the Biochemistry Laboratory of Erbaa State Hospital, were calculated by using top to bottom measurement model.
RESULTS:For glucose;(uRw)²:9.17, (uCref)²:0.178,(uYanlılık)²:9.31, Uc(combined uncertainty):4.30, U(expanded uncertainty):8.59 For creatinine; (uRw)²:18.99, (uCref)²:0.656,(uYanlılık)²:18.84, Uc(combined uncertainty):6.15, U(expanded uncertainty):12.3 For HbA1c; uRw)²:3.03, (uCref)²:0.335,(uYanlılık)²:3.89, Uc(combined uncertainty):2.63, U(expanded uncertainty):5.2 at 95% confidence interval, measurement uncertainty for serum glucose analysis was found to be 9%, for creatinine to be 12% and for HbA1c to be 5%.
CONCLUSIONS:The error limits (tolerances) indicated in the WestGard site are given as 10% for glucose, 15% for creatinine and 25% for HbA1c (4). The results obtained in the study are found to be within the given error limits.
Keywords: Measurement uncertainty, glucose, creatinine, HbA1c

PP-087
ANALYSIS OF CLINICAL CHEMISTRY LABORATORY CRITICAL VALUE: ANTALYA EDUCATION AND RESEARCH HOSPITAL

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OBJECTIVES:The aim of this study is to analyze the critical value results determined within one year in the clinical biochemistry laboratory of Antalya Training and Research Hospital and to contribute to patient safety-focused work towards post-analytical phase. MATERIALS and METHODS:Biochemical test results were examined in the clinical biochemistry laboratory of Antalya Training and Research Hospital from January 1, 2017 to December 31, 2017, and test results with critical value reporting were determined. All data were obtained from reports generated from the LIS. In this report, we provide a comprehensive view of the critical value reporting process. We provide details regarding the scope, volume and distribution of critical value reporting. RESULTS:In 2017, a total of 5,870,825 parameters were performed in the biochemistry laboratory and critical value reports were 7652 tests. Panic values constituted 0.13% of the total number of tests. Most of the panic value reports were performed with 3247 tests in emergency service, internal branches 2188, intensive care 1745 and 472 panic values in surgical branches. Creatinine was the test which resulted in critical value the most (1223) whereas it was phosphorus which resultedin panic value the least(58). In the case of emergency department, it was amylase with the most panic values (3270) and calcium with the least(16) test results in panic value. CONCLUSIONS:When critical value is noticed, it should be reported to the responsible physician or nurse of the patient as soon as possible according to the determined rules. Laboratory staff should be educated about panic values and panic value reporting.
Keywords: critical results, post-analytical phase, clinical chemistry, patient safety

PP-088
A GENERAL ANNUAL OVERVIEW OF QUALITY INDICATORS IN AN EMERGENCY LABORATORY

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OBJECTIVES:In the study, the annual statistics of urgent biochemical tests, cardiac biomarkers, complete blood count (CBC), coagulation, erythrocyte sedimentation rate (ESR), blood gases and urine tests t were evaluated according to a series of quality indicators to determine the laboratory performance to provide suggestions for improving patient safety and laboratory quality. MATERIALS and METHODS:A total of 425376 patients admitted to Emergency Service between June 30 2017–July 1 2018 were included in the study.Specimen rejection rates of biochemistry, cardiac,CBC, coagulation, ESR, blood gases, urine tests were calculated from these patients; turnaround time(TAT) of potassium(K), INR,troponin T(Tn-T), leukocyte and pH tests were calculated. The data was obtained from LIMS. Biochemistry tests were analyzed on Cobas6000; cardiac biomarkers on Cobase411; CBC on Sysmex XN-1000; ESR on Vision-B; blood gases on ABL800Flex; coagulation on Stago Starmax;urine Cobas6500 analyzer. RESULTS:The rejection rates(%) and error frequency for biochemistry, cardiac,CBC, coagulation,ESR,blood gases and urine tests were 4 and hemolysis was 92%, respectively. 0.15, incorrect sample vessel/type 49%; 0.6, clotted sample 78%;1.6, insufficient sample 32%; 0.7, insufficient sample 38%; 8.6, clotted sample 86%; 0.97, insufficient sample was 83%.In these study groups, inappropriate TAT percentages (%) and mean TAT durations(min) were 24, 52 for K, INR, Tn-T, leukocyte and pH; 4, 38; 28, 56; 15,18; 9, and 12,respectively. CONCLUSIONS:Our findings suggest that a large proportion of the causes of emergency test rejection are due to problems in the preanalytical phase. Despite the higher percentage of inappropriate TAT rates,the mean TAT is less than internationally defined allowable limits.
Keywords: Quality indicator, emergency tests, laboratory management

PP-090
EVALUATION OF POST-ANALYTICAL AND POST-POST ANALYTICAL PHASES IN THROMBOCYTOPENIA

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OBJECTIVES:Thrombocytopenia is associated with an increased risk of bleeding. Ministry of Health circular, considers thrombocytopenia limit to be less than 40.000µL. In our study, we evaluated laboratory turnaround time (TAT) and the time-lapse from approval to consultation to Hematology from emergency department about platelet values under 40.000µL. Our aim is to assess the post-analytical phase and further evaluates the post-post analytical process. MATERIALS and METHODS:The emergency clinic patient data from the hospital automation system about consultations in April, May, June and July months were obtained. The number of emergency clinic hematology consultations about thrombocytopenia in this phase was 22 consultations for 14 patients. TAT is defined as the time between laboratory admissions to approval. We calculated laboratory TAT and the time-lapse from approval to consultation to Hematology from emergency department. Results were calculated as mean, (minimum, and maximum) in minutes. RESULTS:In our preliminary study, data of 14 patients were studied. The mean TAT between laboratory admissions to approval was calculated as 56 minutes (9-295). The mean time-lapse from approval to consultation was 390 minutes (5-1275). However total number of patients with thrombocytopenia was 32 at the same dates. CONCLUSIONS:In post-analytical evaluation of thrombocytopenia, TAT was within 1 hour target. In accordance with the recommendations of the Ministry of Health, platelet value under 40,000 µL should be included in the laboratory alert value list. We believe evaluating the effect of thrombocytopenia on the post-post analytical phase monthly by using consultation periods will improve the clinical quality standards.
Keywords: thrombocytopenia, post-analytical phase, post-post analytic phase, panic value

PP-091
PREANALYTIC ERROR SOURCES: BLOOD GAS SAMPLE

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OBJECTIVES:Accurate and rapid laboratory results are important in disease detection, classification, treatment and follow-up of the disease. The aim of this study is to assess the records held for blood gas specimens sent to our hospital's biochemistry lab between 2016 and 2017 immediately. MATERIALS and METHODS:Study Between January 2016 and December 2017, a retrospective study of the blood gas specimens sent in Konya N.E.Ü. Meram Medical Faculty biochemistry laboratory was carried out for 2 years. Errors were evaluated according to their type. RESULTS:In the two years period, the laboratory has a total of 20029 blood gas samples, of which 9462 were emergency services in 2016 and 11567 in 2017. 4% of the accepted 21029 blood gas samples were rejected as a result of preanalytical error. The more common sources of errror were clotted samples and in apppropriate sample volumes (3%). CONCLUSIONS:It is very important to keep the preanalytical errors which affects the quality of the laboratory the most and observe the most error in order to produce correct and high quality results. For this, taking the blood gas, sending it to the laboratory in a correct and rapid manner, and working in the laboratory will increase both the accuracy and reliability of the results and ensure that the treatment to be applied to the patient is correct. In addition, false barcoding of the sample during acceptance, phlegm withdrawal, mistakes during laboratory transfer and waiting of the sample are noted as preanalytical errors of blood gas samples.
Keywords: preanalytical error, clotted sample, blood gas

PP-092
BLEOMYCIN INDUCED ALTERATIONS IN JNK AND p38 IN TESTICULAR CANCER CELLS

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OBJECTIVES: Bleomycin is used in chemotherapy regimens in the treatment of patients having testicular germ-cell tumor (TGCT). MAPKs are important mediators involved in the intracellular network of interacting proteins that transduce extracellular signals to intracellular responses. We aimed to elucidate the underlying network of signalling events in the bleomycin-induced membrane lipid profile changes in NTera-2 cells. MATERIALS and METHODS:We measured the membrane fatty acids which were isolated, derivatized and analysed by gas chromatography in the NTera-2 cells incubated for 24h with bleomycin treatment. We determined the levels of MAPK pathway members; Phospho-p44/42 MAPK, phospho-p38 MAPK, MEK1, phospho-MEK1, SAPK/JNK and phospho-SAPK/JNK. RESULTS:24 h treatment of NTera-2 cells with bleomycin resulted in a strong activation of two MAPKs (JNK, and p38). JNK and p38 are classified together as stress-responsive kinases, which are involved in cell death. No difference was observed in dephosphorylated-JNK and dephosphorylated-MEK levels. Bleomycin led to a decrease in phosphorylated-MEK and phosphorylated-ERK levels. CONCLUSIONS:Our results indicate that bleomycin has an essential role in the regulation of membrane lipid profile alterations in human testicular cancer cell line. These results highlight the role of the membrane asset for fatty acid remodeling and suggest the potential of lipid-based strategies for influencing cell response and fate in human diseases, such as testicular germ cell tumors.
Keywords: JNK, p38, Testicular cancer cells

PP-093
GENETIC POLYMORPHISM IN CYCLOOXYGENASE-2 GENE AND SUSCEPTIBILITY TO ORAL SQUAMOUS CELL CARCINOMA

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OBJECTIVES:Oral squamous cell carcinoma (OSCC), is one of the most common malignancy in the world. The etiology of OSCC include tobacco consumption, drinking habits, ionizing radiation, dental hygiene but several other factors such as nutritional deficiencies, genetic variations and inflammation have been also correlated. Cyclooxygenase-2 (COX-2) is important regulatory enzyme in carcinogenesis process through regulation of angiogenesis, apoptosis, immune function and inflammation, which are all crucial in the development and progression of tumors. In present study we aim to investigate the association of COX2 1195 gene polymorphism with oral squmous cell carcinoma OSCC susceptibility. MATERIALS and METHODS:A total of 102 patients and 150 healthy individuals were enrolled in current study. COX2 1195 genotypes were determined by using a polymerase chain reaction-restriction fragment lenght polymorphism (PCR-RFLP) analysis. Statistical analyses were performed by using the SPSS 15 software package. RESULTS:COX2 1195 polymorphism AA, AG, GG genotype frequencies for controls and cases were 57.3%, 42.7%, 0%, and 70.6%, 28.4%, 1%, respectively. There were significant differences in the distribution of COX2 1195 genotypes between patients and controls (p:0.039) also we observed that the carriers of the AA genotype had an increased risk for development of OSCC (p:0.033). When we performed stratification analyses by prognostic parameters such as tumor stage lymph node status, distant metastasis and tumor differentiation we didn't observe any statistically differences in our patient group. CONCLUSIONS:We suggested that the COX2 1195 gene polymorphism might be associated with OSCC. Further studies in a larger population is needed to confirm the our results.
Keywords: Oral squamous cell carcinoma, Cyclooxygenase, gene variation

PP-094
THE EVALUATION OF CYCLOOXYGENASE-2 1195A→G GENE POLYMORPHISM IN TURKISH PROSTATE CANCER PATIENTS

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OBJECTIVES:The overexpression of cyclooxygenase-2 (COX-2) has been shown in a variety of human cancers. It influences carcinogenesis through regulation of angiogenesis, apoptosis, cytokine expression, and immune response suppression. The aim of this study was to investigate the association between COX-2-1195A→G (rs689466) gene polymorphism and prostate cancer. MATERIALS and METHODS:Consecutive patients with histologically confirmed prostate cancer (n= 155) and healthy controls with normal serum total PSA (< 4 ng/ml) and DRE (n= 174) were prospectively enrolled in this study between 2010 and 2017. Prostate cancer patients were classified as low stage disease and high stage disease. COX-2-1195A→G gene polymorphism was determined using polymerase chain reaction (PCR). For the statistical analyses Chi-square ($\chi 2$) test, Mann-Whitney U test and logistic regression test were used where appropriate. RESULTS:There were no significant differences in terms of the age and BMI between prostate cancer patients and controls. No statistically significant difference was found between controls and prostate cancer patients regarding COX-2-1195A→G gene polymorphism ($p>0.05$). Furthermore, there was no association between COX-2-1195A→G gene polymorphism and Gleason score or the stage of prostate cancer after adjustment for age, BMI and cigarette smoking. CONCLUSIONS:We suggest that the COX-2-1195A→G gene polymorphism is not a risk factor for neither the initiation nor the progression of prostate cancer in Turkish men.
Keywords: Prostate cancer, COX-2-1195A→G, Turkish men population, PCR

PP-097
THE OTHER FACES OF DEATH: CELL TYPE DEPENDENT APOPTOTIC EFFECTS OF DINUCLEAR PD (II) COMPOUND

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OBJECTIVES:Breast cancer is the most common malignancy in women around the world, accounting for around 30 % of all cancers in women. Furthermore, it is the second most common cause of cancer-related death after lung cancer. Platin/Palladium based coordination compunds has been used in chemotherapy treatment more than 25 years. However, researchers focus on new multi nuclear platin/palladium compounds synthesis by using new strategies overcome against drug resistance and dose limiting side effects. Therefore, in this study, the cytotoxic/apoptotic effects of the dinuclear Pd (II) compound was investigated in different cancer cell lines. MATERIALS and METHODS:The cytotoxic activity of the dinuclear Pd (II) compound was determined by SRB and ATP assays in HCT-15 (colorectal cancer), SKOV3 (ovarian cancer) and BXPC-3 (pancreatic cancer) cells. Cytotoxic/cytostatic/antiproliferative effects in the cells were visualized with xCELLigence RTCA system. The cell death mode were determined by using flow cytometry with Annexin-V, caspase 3/7, mitochondrial membrane potential, Bcl-2 activation, DNA damage and oxidative stress parameters. In addition, morphological evaluation with fluorescence microscopy confirmed the mode of death. RESULTS:The dinuclear Pd (II) compound was found to have cytotoxic activity

of HCT-15, SKOV3 and BXPC-3 cells in a time and dose-dependent manner. In HCT-15 and BXPC-3 cells, a strong DNA damage was observed due to increased ROS, but these findings were not found in SKOV3 cells. Mitochondrial membrane depolarization was only observed of BXPC-3 cells in time dependent manner. CONCLUSIONS:The dinuclear Pd (II) compound has been found to cause apoptosis through different pathways in different cancer cell lines.
Keywords: Dinuclear Palladium (II), Apoptosis, Cancer

PP-098
INVESTIGATION OF EFFECT OF THYMOQUINONE & 5-FLUOROURACIL ON COLON CANCER BOTH IN VITRO AND IN VIVO

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OBJECTIVES:Colon cancer(CC) is one of the most prevalent cancers in human worldwide. Insensitivity, non-specific cytotoxicity and the limited therapeutic efficacy of its standard chemotherapeutic drug, 5-fluorouracil(5-FU), represents an important challenge in CC treatment. The robust antitumor properties of thymoquinone(TQ), bioactive constituent present in black seed (Nigella sativa) and has been found to exhibit anticancer effect. We investigated cytotoxic, genotoxic and apoptotic effects of TQ and 5-FU on colon cancer both in vivo and in vitro. MATERIALS and METHODS:Lovo cells were incubated with different concentration of TQ/5-FU for 24 -48h. To generate a colon cancer xenograft tumor mouse model, Lovo cells(2x106/mouse) and were subcutaneously injected into athymic nude mice. Cell viability, DNA damage, apoptosis, mitochondrial membrane potencial, intracellular calcium and ROS levels, antitumor and histopathological activities were analyzed. RESULTS:It has been found that in vivo, combination of TQ/5-FU has more antitumor, cytotoxic genotoxic and apoptotic effects than TQ or 5-FU alone. This effect is probably associated with their pro-oxidant and ROS production capacity. It has been shown that the combined treatment of TQ with 5-FU represents a significantly more effective antitumor agent than either agent alone in a xenograft tumor mouse model. CONCLUSIONS:These data suggest that the TQ/5-FU combined treatment induces apoptosis by enhancing the activation of both pro-oxidant activity and intracellular reactive oxygen species level in colon cancer. These results, which provide molecular evidence both in vitro and in vivo, support our conclusion that combination of TQ and 5-FU may be a potential agent in the treatment of colon cancer.
Keywords: Thymoquinone, 5-Fluorouracil, Colon Cancer

PP-099
EFFECTS OF CeO2 NANOPARTICLES ON MMP EXPRESSION IN COLORECTAL CANCER CELLS

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OBJECTIVES:Colorectal cancer (CRC) is a common cancer with a high rate of metastasis. Metastasis includes the remodelling of extracellular matrix (ECM) by proteolytic enzymes which represents one of the initiating events allowing cancer cells invade into the surronding stroma. There is growing support for the concept that ROS can increase MMP activity, leading to increased cell migration and invasion. The aim of this study is the inhibition of oxidative stress by CeO2 nanoparticles to decrease MMP-2 and MMP-9 expressions and increase TIMP-1 and TIMP-2 expressions. MATERIALS and METHODS:HT-29 CRC cells were treated with different concentrations of H2O2 for 24 hours to induce oxidative stress. Oxidative stress generation was determined using MDA ELISA. Oxidative stress induced cells were treated with CeO2 nanoparticles (2.5,5,10 mg/ml) for 48 hours followed by total RNA isolation and cDNA synthesis. MMP-2, MMP-9, TIMP-1, TIMP-2 expression levels were determined by RT-PCR. Cytotoxicity of H2O2 and CeO2 nanoparticles were determined by XTT. RESULTS:10 µM H2O2 was used to induce oxidative stress. CeO2 nanoparticles effected the viability of HT-29 cells in a dose-dependent manner. 10 mg/ml CeO2 nanoparticles achieved 78% inhibition of oxidative stress. MMP-2 and MMP-9 mRNA expressions were significantly decreased by CeO2 nanoparticle treatment whereas TIMP-1 and TIMP-2 mRNA expressions were increased. CONCLUSIONS:Data suggest that CeO2 nanoparticles can act as an important inhibitor of MMP-2 and MMP-9 expressions and may be considered as a part of combinational therapy to prevent invasion of CRC cells.
Keywords: Colorectal Cancer, CeO2 nanoparticles, Matrix metalloproteinases

PP-100
THE EVALUATION OF CYCLOOXYGENASE-2 G-765C GENE POLYMORPHISM IN RENAL CELL CARCINOMA

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OBJECTIVES:Renal cell carcinoma (RCC) accounts for about 3% of all cancer-related mortalities worldwide and the risk factors for the development of RCC have not yet been fully elucidated. Cyclooxygenase-2 (COX2) is an inducible enzyme for the producing of prostoglandins. Typically, COX2 is often undetectable in normal tissue, whereas overexpression of COX2 has been observed in a variety of human cancers. The aim of the present study was to investigate the possible association of COX2 G-765C gene polymorphism with the risk and clinicopathological characteristics of renal cell carcinoma in Turkish population. MATERIALS and METHODS:64 patients diagnosed with clinically and histopatologically confirmed RCC and 157 healthy subjects were enrolled in the present study between 2015-2017. DNA samples obtained from patients and controls were analysed for COX2 G-765C gene polymorphism using polymerase chain reaction (PCR), restriction fragment length polymorphism (RFLP) and agarose gel electrophoresis techniques. Mann-Whitney U test, Pearson Chi-square ($\chi 2$) test and logistic regression test were used for statistical analysis of the results. RESULTS:No statistically significant difference was determined between patients and controls in terms of age, BMI and smoking. There was no significant difference in the genotype distribution of COX2 765G→C gene polymorphism between patients with RCC and controls. In addition, no association was found regarding Gleason score and the stage of RCC after adjustment for age, BMI and cigarette smoking. CONCLUSIONS:Our results suggest that COX2 G-765C gene polymorphism may not be a risk factor for the initiation and development of RCC in Turkish population.
Keywords: Renal Cell Carcinoma, COX2, Turkish population, Polymorphism

PP-101
TARGETING BREAST CANCER STEM CELLS VIA DUAL INHIBITION OF WNT SIGNALING AND HISTONE DEACETYLATION

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OBJECTIVES:Epigenetic changes play a key role in the development of new therapy strategies that targeting cancer stem cells (CSCs). Modulation of histone acetylation program is closely related to differentiation and apoptosis process. CSCs are responsible for apoptosis resistance and Wnt signaling is re-activated in these cells that associated with cell survival/self-renewal and differentiation. Hence, we focused on a possible cytotoxic/apoptotic effect of the combination of niclosamide (Wnt pathway inhibitor) and Valproic acid (histone deacetylase inhibitor) on breast CSCs (MCF-7s). MATERIALS and METHODS:The cytotoxic activity of combination was demonstrated by ATP assay. Acetylated histone H3 levels were assessed by ELISA. Protein levels associated with Wnt signaling, EMT, and histone modifications were shown by western blotting. Cell death was investigated via fluorescence imaging, M30 ELISA, RT-PCR (apoptosis and autophagy) and western blotting (apoptosis, autophagy and ER stress). RESULTS:The combination therapy exhibited a marked decrease in cell viability by inducing apoptosis along with the stronger Wnt inhibition and increased histone H3 acetylation in MCF-7s cells. Furthermore, ER stress and blockade of autophagic flux have also been shown to be involved in this process. In addition, it was found that the epithelial markers were re-expressed in which H3K9ac and H3K4me3 were also increased. CONCLUSIONS:Our results suggest that dual inhibition of Wnt signaling and histone deacetylation modulates stemness (re-differentiation?) and sensitizes cells to apoptosis. The future success of this combination approach in targeting CSCs and converted CSCs to non-CSCs may hold a novel significant promise for better treatment of breast cancer.
Keywords: Apoptosis, Histone Acetylation, Cancer Stem Cell, Wnt Signaling

PP-102
EVALUATION OF CIRCULATING TUMOR DNA (ctDNA) AS A PROGNOSTIC MARKER IN PROSTATE CANCER PATIENTS

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OBJECTIVES:Several studies have shown the potential role of ctDNA levels in

the prognostic assessment of different malignancies. Quantification of ctDNA is a prerequisite for a reliable genotype analysis focused on the detection of cancer-specific DNA mutations, and/or epigenetic modifications. We assessed the quantity of ctDNA by two different quantification procedures, furthermore cancer-specific DNA mutations as prognostic biomarkers in prostate cancer patients. MATERIALS and METHODS:25 prostate cancer patients and 30 aged matched healthy controls were enrolled into the study. Blood samples were collected at the diagnosis of prostate cancer, and at 6 and 12 months following the radical prostatectomy operation. ctDNA was extracted from plasma through Qiagen kit and Promega automatic extractor. Qubit with single(ss) and double strand(ds) DNA assay kits, NanoDrop and qPCR were used to assess the ctDNA. RESULTS:Qubit 2.0 gave higher ctDNA levels and revealed higher sensitivity in the quantification of ss-DNA and ds-DNA, while NanoDrop allowed the assessment of the purity of ctDNA. Preliminary data showed that patients with high ctDNA concentration at baseline had worse disease free-time and overall survival. CONCLUSIONS:The automated ctDNA extraction associated to the quantification by Qubit 2.0 seems to be the best approach to quantify the patient's cancer-specific DNA mutations by qPCR assay. The NanoDrop and Qubit 2.0 measurements showed good correlation values with the qPCR. The combination of multiple mutational/methylation cancer biomarkers and the total amount of ctDNA can be used as a prognostic and predictive tool for stratification, clinical management and follow-up of prostate cancer patients. Keywords: ctDNA, NanoDrop, Prostate cancer, Prognostic biomarker, Qubit, Real Time PCR

PP-103
THE EFFECTS OF FK506 WITH AKT INHIBITOR ON PDGF INDUCED A549 CELL PROLIFERATION

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OBJECTIVES:Aim of this study is to investigate the effects of combine treatment of Calcineurin inhibitor FK506 and Akt inhibitor (Akti) on Platelet Derived Growth Factor (PDGF) induced A549 cell proliferation. MATERIALS and METHODS:Human lung cancer cell line A549 was used in this study. Doses of drugs were administered to cells as PDGF (100 ng/ml), Akt inhibitor (5 µM) and FK506 (1 µM). xCELLigence real time cell analysis system was used to monitor cell proliferation during 72 hours. Experimental groups were determined as; Control, PDGF, Akti, FK506, PDGF+Akti, PDGF+FK506, Akti+FK506 and PDGF+Akti+FK506. Statistical analyses were performed by One-way ANOVA followed by Tukey test. RESULTS:Looking at the cell proliferation results, it was shown that PDGF increased A549 cell proliferation while Akti decreased proliferation during 72 hours. It was also shown that both alone and combine treatment of FK506 with Akti decreased cell proliferation. It was detected that Akti had more inhibitory effects than FK506 on PDGF induced A549 cells. CONCLUSIONS:The results of this study indicate that the combine treatment of FK506 with Akti inhibits PDGF-induced A549 cell proliferation. This study was supported by Ataturk University with 6673 coded BAP project. Keywords: FK506, Akt inhibitor, PDGF, A549, proliferation

PP-104
INVESTIGATION OF VPO1, ATF4 AND GPX LEVELS IN CORONARY ARTERY PATIENTS

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OBJECTIVES:Cardiovascular disease is the leading cause of death in the world, and is associated with significant morbidity. The mechanism of atherosclerosis has been well investigated in different aspects such as lipid mechanism, role of oxidative stress, and endothelial function. The aim of this study is to investigate whether an oxidative enzyme vascular peroxidase 1 (VPO1) and activating transcription factor 4 (ATF4) can be used as biomarkers in highlighting the pathogenesis of the disease and in evaluating the relationship with endoplasmic reticulum and oxidative stress. MATERIALS and METHODS:80 patients were examined according to the coronary angiography results. CRP, lipid parameters and demographic characteristics, VPO1, ATF4 and GPx1 (glutathion peroxidase 1) levels were measured. RESULTS:We found an increase in VPO1 and CRP levels in single vessel disease as compared to controls however, ATF4 and GPx1 levels were decreased in the same group, but these changes were not significant. We also found a significant corelation between ATF4 and lipid parameters. Istatistically significant positive correlation was also seen for VPO1 and ATF4 (r=0,367, P<0,05), and negative correlation was found for VPO1 and GPx1(r=-0,467, P<0,01). There were significant negative relationship observed for GPx1 ve CRP for two/three vessel disease (r=-0,366, P<0,05). CONCLUSIONS:VPO1 and ATF4 may have a potential biomarker associated with coronary artery disease, especially in the follow-up and monitoring of treatment protocols, in addition to traditional risk factors. Keywords: Atherosclerosis, ER Stress, VPO1, ATF4, GPx1

PP-105
EFFECT OF SMOKING CESSATION WITH VARENICLINE ON PLASMA HOMOCYSTEINE LEVELS

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OBJECTIVES:Homocysteine is a sulfur-containing aminoacid and elevated plasma Homocysteine levels can mediate adverse cardiovascular consequences. Cigarettes contain many chemicals that are harmful to human health. On the other hand, smoking causes increased plasma homocysteine.. Varenicline is one of the commonly used drugs in smoking cessation treatment. However, the effect of smoking cessation with Varenicline treatment on homocysteine levels is not still clear. Our aim was to determine the effects of smoking cessation with Varenicline treatment on plasma homocysteine levels after 3 months of smoking cessation. MATERIALS and METHODS:Our study includes 31 patients who have at least 10 pack-year smoking history and quit smoking successfully for 3 months with Varenicline therapy between Mai,2017 and April,2018. Plasma Homocysteine analysis was performed by ABscıex API 3200LC/MS/MS. Statistical analyses were performed using the IMB SPSS, Version 21. RESULTS:Plasma homocysteine levels were statistically higher in patients quitting smoking with Varenicline therapy (mean=12.8±3.8 µmol/L) compared to before quitting smoking and pretreatment (mean=9.5±4.2 µmol/L) ($p \leq 0.001$). CONCLUSIONS:Finding of our study indicated that plasma homocysteine levels significantly increase after three months of cigarette cessation. The drug used to quit smoking may also be candidate factor in increasing the level of homocysteine which leads cardiovascular adverse events. Further studies that contain other cigarette quitting methods are needed in order to understand the cause of homocysteine increase. Keywords: Smoking Cessation, Varenicline, Homocysteine

PP-106
MPV AND NLR TO ASSESS LIVER FIBROZIS IN PATIENTS WITH HEPATITIS B

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OBJECTIVES:Hepatitis B virus (HBV) infection is an important public health issue all over the world, and it has a high morbidity and mortality rates caused by chronic liver disease. In patients infected with the hepatitis C virus, non-invasive fibrosis models are under development to replace liver biopsy, the current gold standard for fibrosis assessment. We aimed to determine the relationship of liver fibrozis in hepatitis B with mean platelet volume (MPV), neutrophil-lymphocyte ratio (NLR). MATERIALS and METHODS:We analyzed the data of 90 patients followed by our gastroenterology department between January 2010 and June 2016. The fibrosis levels of patients were classified according to the Ishak system (fibrosis 0-1, no/mild fibrosis; and fibrosis ≥ 2, significant fibrosis). Blood samples were taken before biopsy and MPV and NLR values were taken in accordance with blood samples. Data analyses were carried out using SPSS 15 software. Statistical significance was set at a p-value of less than 0.05. RESULTS:MPV was significantly lower in the fibrosis 0-1 patient group, in comparison to fibrosis ≥ 2 patient group, respectively (8.16 vs. 8.85; p=0.024). However, NLR values were not different for the two groups, respectively (2.1 vs.1.8; p>0.05). There was significant correlation between mean platelet volume and fibrosis level, but no correlation between neutrophil-lymphocyte ratio and fibrosis assessment. CONCLUSIONS:Simple, inexpensive and routinely used, MPV was found to be suitable as a non-invasive method for the diagnosis of significant fibrosis in hepatitis B virus patients. However, NLR was found to be incompatible for use in the diagnosis of significant fibrosis. Further studies are required to determine the associations between combination of hemogram parameters and the severity of fibrosis in chronic hepatitis B patients. Keywords: Hepatitis B, Liver fibrosis, Neutrophil-lymphocyte ratio, Mean platelet volume

PP-107
THE COMPARISON OF SERUM AND PLASMA TROPONIN I LEVELS IN DIFFERENT BLOOD COLLECTING TUBES

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OBJECTIVES:Troponin I(TnI) is one of the tests that should rapidly assessed in the diagnosis and monitoring of myocardial infarction. For this reason, we aimed to compare the high-sensitivity TnI values between the heparinized blood collection tube containing two different separators and the blood collection tube containing the clot activator and gel separator, in order to shorten the "turnaround time" for TnI. MATERIALS and METHODS:A total of 48 patients whom were requested TnI test in suspicion with acute coronary syndrome in emergency room were included in the study. The blood was collected into the tube containing gel and clot activator(SST), lithium heparinized tube containing gel(PST) and lithium heparinized blood tube with newly produced barrier(Barricor). After centrifugation, serum and plasma TnI levels were analyzed using the high-sensitivity TnI kit. TnI levels in three tubes were statistically and clinically compared. RESULTS:There was no statistically difference among the tubes. However, while there was a perfect fit between PST and Barricor tube, a proportional error observed between SST and plasma tubes. The difference between SST and plasma tubes was found unacceptable as the mean values of TnI in SST, PST and Barricor tubes(1.63, 1.44 and 1.48 ng/mL, respectively) were compared and the plasma mean values were outside of the significant change limit(1.49-1.77 ng/mL). CONCLUSIONS:TnI levels were found to be lower in plasma than serum, regardless of the PST or Barricor tube. Care should be taken when switching from serum to plasma in terms of specimen type and reference values for plasma should be verified.
Keywords: Troponin I, serum, plasma, blood collection tube

PP-108
COMPARISON BETWEEN CARDIAC MRI T1 MAPPING AND SERUM FGF-21 LEVELS AS ATRIAL FIBROSIS MARKERS

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OBJECTIVES:Atrial fibrillation is a supraventricular arrhythmia characterized by the loss of coordinated atrial activity. Studies show the relationship between atrial fibrillation and atrial fibrosis. Atrial fibrosis can be revealed by various methods, one of which is cardiac MRI T1 mapping. Biochemically, there are studies showing that there may be a relationship between serum FGF-21 to atrial fibrillation and fibrosis. In our study, we aimed to analyze the correlation between MRI T1 mapping and serum FGF-21 levels. MATERIALS and METHODS:Cardiac MRI was performed to 21 patients with paroxysmal atrial tachycardia in July 2017- March 2018 time period at Hacettepe University, Department of Cardiology. Blood samples from left atrium and peripheral vein were taken during atrial fibrillation catheter ablation procedure. Serum samples were separated and stored at -70°C. Biovendor human FGF-21 ELISA kit was used for the analysis. RESULTS:Left atrium (central) serum FGF-21 mean level was 202,5±136,1 pg/mL, peripheral venous blood samples mean level was 228,1±174,0 pg/mL. Difference between measurements were statistically significant ($p<0.05$). Santral FGF-21 levels and cardiac MRI posterior and posterosuperior atrium T1 time showed a statistically significant negative correlation ($p<0.01$). Peripheral FGF-21 levels failed to show significant relationship with T1 times (Posterior and posterosuperior respectively: $p=0.69$; $p=0.75$). CONCLUSIONS:Atrial fibrosis markers have been studied but correlation between those markers have not yet been defined. In our study, we found a significant relationship between left atrium T1 and central serum FGF-21 values, but not with peripheral serum FGF-21 levels. This result may be explained by the fact that FGF-21 is not specific to cardiac tissue. More comprehensive studies with a larger population should be conducted.
Keywords: atrial fibrillation, atrial fibrosis, FGF-21, cardiac MRI

PP-109
A COMPARISON STUDY OF LH PLASMA TUBES HAVING TWO DIFFERENT SEPARATION TECHNIQUES FOR SELECTED ASSAYS

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OBJECTIVES:Patient plasma samples instead of serum samples can be preferred in laboratories serving emergency departments to give the test results in the shortest time. Plasma samples can be obtained by using different kinds of tubes including different techniques and anticoagulants. In this study, we aimed to compare the results of lithium heparin plasma samples for 29 biochemical and 3 cardiac parameters using tubes with different separation techniques which are gel separator tubes and mechanical separator tubes. MATERIALS and METHODS:Samples were collected from 24 patients who were admitted to the emergency service to both Greiner Bio-One Vacuette 5 ml lithium heparin with Gel Separator Tubes and BD Barricor 5 ml lithium heparin with Mechanical Separator Tubes according to the CLSI instructions, and the preanalytical and analytical processes were applied in accordance with the manufacturers' instructions. RESULTS:Paired patient sample comparisons of 32 parameters yielded Pearson correlation coefficients ranging from 0.94 for calcium to 0.99 for BUN. There was no difference of total bilirubin values between both tubes, and maximal standart deviation was found as 4,25% for lactate. CONCLUSIONS:We found a strong correlation between plasma test results of blood samples collected to the tubes with different separation techniques including gel separator and mechanical separator for biochemical and cardiac parameters. Plasma samples were all clean with no gel artifacts or fibrin clots in both tubes. It may be an option for medical care centers to use gel separator tubes for biochemistry analyses and cardiac enzyme analyses without compromising the quality of patient samples.
Keywords: plasma tubes, gel separator tubes, mechanical separator tubes

PP-110
IMPROVEMENT OF INTRA-LABORATORY TURNAROUND TIME WITH LEAN LABORATORY IMPLEMENTATIONS

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OBJECTIVES:Lean laboratory is a laboratory that produces cost effective and/or rapid results. Intra-laboratory turnaround time (TAT) is an important indicator of laboratory quality and performance. In this study, we aimed to evaluate the effects of lean implementations on TAT analysis of biochemistry and hormone tests in routine laboratory. MATERIALS and METHODS:This study was carried out in the Clinical Biochemistry Laboratory of Karadeniz Technical University in January-July 2018, for routine biochemistry and hormone tests using online preanalytical system. In April, the online preanalytical system was equipped with a centrifuge (48 tubes capacity) and one biochemical autoanalyzer (2000 tests/hour) within the scope of the lean implementations. TAT was calculated in January-March and May-July 2018. RESULTS:Between January-March 2018, total number of analyzed biochemistry and hormone tests in the routine laboratory was 689.212 and the TAT averages were determined 96 and 120 minutes respectively. During May-July 2018, the number of analyzed test increased by 4.1% and found as 718.340 and the TAT averages of biochemistry and hormone tests were determined 62 and 104 minutes respectively. CONCLUSIONS:As a part of the lean laboratory implementations, the addition of one centrifuge to the online preanalytical system reduced the TAT of hormone tests by 13%; increasing both centrifuge capacity and throughput reduced the TAT of biochemical tests by 35%. We believe that reporting the accurate result in a shorter time also reduce the duration of diagnosis and treatment of patients, total costs; and this situation is especially important for patients who come from remote locations.
Keywords: Lean laboratory implementations, TAT, Biochemistry and hormone tests

PP-111
CLINICAL PERFORMANCE OF MACROPROLACTIN TEST FOR DETERMINATION OF THE PITUITARY ADENOMAS

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OBJECTIVES:To evaluate clinical performance of prolactin test and percentages of pituitary adenoma according to results of macroprolactin in our hospital. MATERIALS and METHODS:For this study,patients applied to our outpatient clinics between January 2016 and July 2018 with prolactin,macroprolactin and pituitary MR results were screened and all hyperprolactinemic patients were collected.Patients were grouped according to results of macroprolactin and adenoma status.Prolactin measurement was carried out by a Cobas e601 analyzer (Roche Diagnostics).Macroprolactin measurement was carried out by the precipitation with polyethylene glycol(PEG).Patients with a recovery rate of <40% were classified as positive,40%-60% as positive but suspected,and >60% as negative for macroprolactin. Those with suspected positive added separately to other two groups and clinical performance values were calculated. Pituitary adenoma ratios of patients grouped according to macroprolactin results were compared with chi-square test. RESULTS:In our study,when used 40%recovery as cut-off point,macroprolactin assay sensitivity was 85%,specificity 26%, positive predictive value(PPV)

61%,negative predictive value(NPV) 57%,positive likelihood ratio(LR+) 3.3, negative likelihood ratio(LR-) 0.57.Sensitivity was found to be 59%,specificity 57%,PPV 65%,NPV 50%,LR(+) 1.37, LR(-) 0.71 when used 60% recovery as a cut-off point.Pituitary adenoma ratios between groups were compared using chi-square test.There was no significant difference between three groups (p>0.05). CONCLUSIONS:In our study,macroprolactin test sensitivity and likelihood ratios were found to be acceptable by 40% cut-off point. Accordingly,it may be necessary to perform macroprolactin screening in all patients with high prolactin levels.However,there was no significant difference between pituitary MR results of groups formed according to macroprolactin result.Thus,in patients with hyperprolactinemia,even if macroprolactin is positive,pituitary imaging may be necessary. Keywords: Prolactin, Adenoma, Clinical Performance, Interference

PP-112
EVALUATION OF RELATIONSHIP BETWEEN CRP AND ERYTHROCYTE SEDIMENTATION RATE TESTS RETROSPECTIVELY

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OBJECTIVES:CRP and Erythrocyte sedimentation rate (ESR) are used together generally. However, there is no methodology for that. In our study, we retrospectively evaluated to investigate the association of tests in patients results who applied our hospital (July 2017-2018). MATERIALS and METHODS:CRP and ESR performed in our laboratory were analyzed. CRP measured by Beckmann Coulter AU2700/AU680 (immunoturbidimetric). ESR measured by Therma NE (Westergren). Normal value of CRP was defined as 5 mg/L (manufacturer recommendation). Normal value of ESR was defined as 13 mm/h(men), 19 mm/h(women). These values(ESR) are valid in younger than 50 years old. Our study was designed in this population. Analysis of descriptive statistics and correlation was made in SPSS 24.0. RESULTS:In 6122 patients; we founded the mean of CRP results was 16,4±22,0 and ESR results was 44±19. We made correlation analysis. The equation is founded y=0,61x+21,947, r2= 0,1616. It is founded significant statistically(p<0,001). We chose patients younger than 50 years old(3005 patients) and defined normal/abnormal results. We founded that CRP normal/ESR normal situation was in 1422 results(%47,3), CRP abnormal/ESR normal situation was in 232 results(%7,7), CRP normal/ESR abnormal situation was in 759 results(%25,2), CRP abnormal/ESR abnormal situation was in 592 results(%19,8). In last population, we made correlation analysis. The equation is founded y=0,2321x+36,77, r2=0,081. It is founded significant statistically(p<0,001). Discordant results were %32,3(991/3005). CONCLUSIONS:CRP and ESR tests use in inflammatory situations. In our evaluation, we founded that significant relationship statistically. Clinicians must choose adequate tests in preanalytical phase. New studies are required for rational test requests and cost analysis. Keywords: CRP, Erythrocyte sedimentation rate, Inflammation

PP-113
EXTERNAL QUALITY CONTROL PROFICIENCY TESTS FOR CHEMICAL DEFENCE ANALYSIS AND RESEARCH LABORATORY

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OBJECTIVES:Analytical and R&D laboratory studies related with chemical weapons (CW) are currently organized in Department of Medical Chemical Defence, the unique academic unit in Turkey which is under threat of CW or neighbouring the countries likely to possess these weapons. Regarding the detection of CW, "Proficiency Test" (PT), an off-site interlaboratory test is conducted by Organization for the Prohibition of Chemical Weapons (OPCW) supporting development of analyzing capabilities of participating Member States laboratories. The aim of this test is to become a designated laboratory which is certified by OPCW. MATERIALS and METHODS:Only our laboratory from Turkey has been participating OPCW Proficiency Tests since 2015. We perform analysis of spiked test samples with both GC-EI/MS and GC-CI/MS in order to detect and identify scheduled compounds relevant to Chemical Weapon Convention in metabolites of environmental and human biomedical samples. RESULTS:As test chemicals are spiked in different matrices including organic solvents, aqueous liquids, soil samples, and biomedical samples, the methodology and procedures used for pretreatment like clean-up, concentration, and derivatization for GC are much more complicated than standard operation procedures of biochemistry laboratories. The analysis report which should contain the results of at least two different analysis techniques should show the evidence of scheduled compounds and fulfill the acceptance criteria of OPCW Reference Laboratory. CONCLUSIONS:Being an OPCW-designated laboratory with an internationally accredited quality system is the final target of our laboratory. Besides GC, LC-MS/MS systems should be used especially for the screening of metabolites and DNA/protein adducts. Keywords: Chemical Weapons, bioanalysis, Quality Control

PP-114
A PART OF THE EVALUATION FOR THE SELECTION OF OUR SUBSTANCE ANALYSIS METHOD

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OBJECTIVES:In order to contribute to our laboratory's awareness of the choice of method for performing drug analysis by immunochemical or chromatographic methods, this is an attempt to evaluate the diagnostic accuracy of the immunochemical method we use. MATERIALS and METHODS:30 urine specimens were analyzed by gas chromatograph and Emit method in Istanbul Private Toksilab drug analysis laboratory, For 40 parameter that values above the threshold value, we worked again with Syva Emit II Plus (Siemens) kits which are used in our laboratory. The obtained results were compared according to the methods considering the threshold values. RESULTS:The immunochemical method used in our laboratory did not contain any false positives in any of the 40 parameters In 30 separate samples. THC (tetrahydrocannabinol) test in 3 samples was negative according to the gas chromatographic method. No another difference was found when evaluated according to the threshold value. CONCLUSIONS:However, in all three examples, the chromatographic results for THC are positive at the threshold value limit and our method in the laboratory results in a negative value close to the threshold values, the measurement we have calculated for this method can be explained by our uncertainty. The performance of our method is also evaluated in terms of reproducibility, accuracy, and recovery. Certain thresholds require that the performance of each laboratory be assessed periodically for drug substance analyzes to which criminal proceedings are applied.In drug analyzes, well-validated chromatographic methods are accepted as reference methods. Keywords: abuse substance analysis, method evaluation, reference method

PP-115
DECREASED SERUM ARGININE LEVELS IN WELDERS WITH MANGANESE-EXPOSURE

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OBJECTIVES:Reduced bioavailability of NO is thought to be one of the central factors common to cardiovascular disease, although it is unclear whether this is a cause of, or result of, endothelial dysfunction. The synthesis of NO from L-arginine can be blocked pharmacologically by a variety of arginine analogues, which have been used to elucidate the mechanisms of action of NO (1). Chronic exposure to Mn has been associated with a decline in myocardial contraction (2). The aim of this study was to investigate serum arginine levels in subjects with manganese-exposure. MATERIALS and METHODS:Serum and whole blood samples were collected from 59 non-exposed control subjects and 54 manganese-exposed welders. Serum arginine was analyzed by liquid chromatography- tandem mass spectrometry (LC-MS/MS) (API 3200, ABSCIEX). Welders with known systemic diseases, including cardiovascular disease, renal disease, gastrointestinal disease, pulmonary disease, acute infection, chronic inflammation were excluded. Statistical analysis was performed with IBM SPSS v21 and p value <0.05 was considered as statistically significant. RESULTS:Serum arginine levels were higher in control group compared to welders (125±57 µmol/L vs 96±78 µmol/L, p=0.028). CONCLUSIONS:Furthering the knowledge of how metal components in the environment affects cardiovascular risk factors would reinforce the basis for stricter permissible exposure limits (3). Arginine might serve as nitric oxide substrate in manganese toxicity. Keywords: Arginine, Tandem Mass, Manganese Toxicity

PP-116
HOW DO THE LEVELS OF SERUM TOTAL OXIDANT CHANGE FOLLOWING ACRYLAMIDE TREATMENT IN RATS?

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OBJECTIVES:Acrylamide is a vinyl monomer, which was first synthesized in the 1950s and later used in many industrial sectors. Although recognized as the neurotoxic agents in those years, acrylamide was found to have multiorgan toxicity in the following years. In literature, acrylamide was reported to increase the different radicals. In this study, we aimed at ascertaining how acrylamide alters total oxidant level in rat serum. MATERIALS and METHODS:In our study, 14 Sprague Dawley (n = 7)

albino rats were divided into 2 groups (control and acrylamide). While the control group was given saline for 21 days, the acrylamide group was given the 40 mg / kg acrylamide per day in the same way. Blood was taken intracardially from the acrylamide-administered animals, and their sera were centrifuged and stored at -20° C for subsequent analysis. The total oxidant levels of the rats were determined by a commercial total oxidant kit. RESULTS:The total oxidant levels of the acrylamide-treated animals (9.17±0,58 µmol H2O2 equiv./L) were detected to be significantly higher than those of the control group animals (6.20±0,18 µmol H2O2 equiv./L) (p <0.001). CONCLUSIONS:As a result, the serum total oxidant levels of rats rise after acrylamide treatment.
Keywords: Acrylamide, rat, total oxidant level

PP-118
THE CAUSES OF THE SAMPLE REJECTION IN HORMONE UNIT OF THE CLINICAL LABORATORY OF A TEACHING HOSPITAL

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OBJECTIVES:The Clinical Laboratory at Hacettepe University Hospitals in Ankara serve inpatient and outpatient departments and emergency services, in which 800-1000 samples per day are up to hormone assays. Unsuitable samples for analysis are generally rejected for hormone laboratory based on specific rejection criteria; therefore it leads to longer turnaraound time and affect patient care. The aim of this study to determine the number of the unsuitable samples, to classify and to investigate how it can be improved. MATERIALS and METHODS:Retrospective analysis was performed; from January 2018 to September 2018 the samples that received to the laboratory totally, and the samples accepted and rejected were included to the study. Sample type, department that sending sample, the reasons of rejection were recorded. RESULTS:In six months, a total of 50475 biological samples rejected by the Clinical Laboratory of Hacettepe University Hospitals, in which rejected by the hormone unit was 1975. The rejection rate was 3.91%. Major reasons were found to be inadequate sample volume (69.8%), wrong sample (6.3%), inaccurate test request (4.6%) and clotting (1.2%). CONCLUSIONS:Inadequate sample volume is the main rejection reason for the hormone laboratory in our university hospital, which is important in particular for pediatric and oncologic patients. With considering sample rejection reasons, laboratory specialists and clinicians should take preventive steps to decrease rejection rate.
Keywords: Rejection rate, turnaround time, hormone lab.

PP-119
REDUCING THE RATIO OF PSA TEST REQUEST IN THE RATIONAL LABORATORY PRACTICE

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OBJECTIVES:PSA is one of the most frequently used tumor markers in biochemistry laboratories. PSA levels are elevated in prostate cancer as well as in benign prostate hypertrophy and infections. In this study, PSA test results and age ranges were examined together to determine the number of patients who didnot meet the indications and then, it was aimed to increase the productivity of laboratories with the principles of rational laboratory usage. MATERIALS and METHODS:All patients who were requested PSA tests (the Advia Centaur XPT (Siemens, autoanalyzer) during June 2017 to May 2018 were included in the study via the Laboratory Information System. According to the European Urological Association EAU2017 guidelines, PSA prevalence before age 50 was not considered significant, and since the age limit was 45 in the presence of family history, the patients were divided into two groups as < 45 and >75 years. RESULTS:The total number of PSA was found to be 16.714. 22% of total(3.653) were under the age of 45 and over 75 years old. CONCLUSIONS:Unnecessary tests in medical laboratories may cause to workforce and financial loss. Guidelines state that cancer screening should be performed if the PSA level is >1ng/mL at age 40. There have no clinical benefit of PSA for patients with prostate tumors after 75 years. Laboratory productivity may be increased by reducing the number of requests with applications such as age warning message, clinic restriction, etc. on the HBYS when the clinician requests for patients <45 and >75 years old in rational laboratory practices.
Keywords: PSA, rational laboratory practice, laboratory productivity

PP-120
METAL IMPLANT REPAIR OF AN UNREPAIRABLE CENTRIFUGE ARM OF AN AUTOMATED URINE ANALYZER

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OBJECTIVES:Mechanical problems of instruments are solved by technical employee of private firms according to contracts between the hospital and the firm. Depending on aid may result in delays in workflow, especially if the unit lacks a back-up instrument. The case describes such an experience and a solution achieved by our own efforts. MATERIALS and METHODS:The instrument in our laboratory is fully automated. Cuvettes with urine samples are centrifuged by a built-in component. Microscopic pictures are then evaluated by the software. On a late afternoon I was informed by our technician that the instrument stopped working. The centrifuge arm was broken. Our technician had already contacted with the service and described the problem. We were informed that the broken piece was impossible to be repaired. It had to be replaced but unfortunately a replacement piece was lacking. The instrument would inevitably be out of order for at least 24 hours. The situation was extremely annoying. We decided to repair the piece. The centrifuge was placed between two narrow slits so that even a milimeter shortening or elongation of the centrifuge arm could lead to a misrepair. We were also informed that the piece was resistant to gluing. Finally we decided to melt and unite the broken sides. A strong unification was also mandatory. By the way, we decided to put a metal piece while melting to hold the two pieces. RESULTS:We replaced the piece back to its place. The so called unrepairable piece worked. CONCLUSIONS:Courage with capability overcame the seemingly impossible.
Keywords: automated urine analyzer, trouble, repair

PP-121
AN EVALUATION OF MUTATION FREQUENCY OF FACTOR V, PROTHROMBIN AND METHYLENETETRAHYDROFOLATE REDUCTASE

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OBJECTIVES:The presence of Factor V (FV), prothrombin and methylenetetrahydrofolate reductase (MTHFR) gene mutations increases the risk of venous thrombosis. In this study, the frequency of these mutations was investigated retrospectively in the patients who were studied in molecular diagnostic laboratories. MATERIALS and METHODS:Between 2012 and 2014, the results of 2280 patients who underwent mutation analysis testing were retrospectively reviewed to investigate the frequency of FV, prothrombin and MTHFR gene mutations. RESULTS:According to the sex of the patients, male n: 712 and female n: 1568, male/female ratio was 0.45 and mean age was 41± 15 years. Mutation frequencies were 1939 (85.04%) normal, 316 (13.86%) heterozygous and 25 (1.1) homozygous for FV, 2167 (95.04%) normal, 107 (4.69%) heterozygous and 6 (0.26%) homozygous for prothrombin, and 1263 (55.39%) normal, 837 (36.71%) heterozygous and 180 (7.89%) homozygous for MTHFR, respectively. The frequencies of heterozygous and homozygous mutations in MTHFR were significantly higher than those of FV and prothrombin mutations. 14 (0.61%) cases of FV, combined prothrombin and MTHFR gene mutations were detected. The number of cases with FV and MTHFR mutations was 109 (4.78%), those with prothrombin and MTHFR mutations was 42 (1.84%) and those with FV and prothrombin mutations was 20 (0.87%). CONCLUSIONS:The increased frequency and association of FV, prothrombin and MTHFR mutations were assessed to be one of the risk factors in venous thrombosis tendency in patients.
Keywords: Venous thrombosis, Factor V, Prothrombin, MTHFR

PP-122
DETERMINATION OF CYP2C19, CYP3A4 AND CYP3A5 AND MDR1 C3435T POLYMORPHISMS IN PEDIATRIC ALL PATIENTS

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OBJECTIVES:CYP genetic polymorphisms are responsible for individual variations in drug metabolism and drug-drug interactions. Genetic variants of some CYPs have been investigated in leukemia risk. Expression of the P-glycoprotein is influenced by MDR1 C3435T genetic polymorphism of the human MDR1 gene. C3435T polymorphism in exon 26 has been reported to be associated with lower P-gp expression and drug uptake. Population differences in genetic polymorphism of enzymes and transporters involved in drug disposition can result in phenotype exhibiting poor, extensive, or even multiextensive metabolism. The aim of this study was to determine the genotypes of CYP2C19, CYP3A4, CYP3A5 and MDR1 C3435T allelic variants in pediatric ALL patients. MATERIALS and METHODS:This study was carried out on patients who with a diagnosis of acute leukemia. 5 mL blood was taken from patients with their consent. Melting curve analysis by real-time PCR was performed to determine to genotypes for CYP2C19, CYP3A4 and CYP3A5 variants. In addition, samples were analysed for MDR1 C343T polymorphism by PCR-RFLP method. RESULTS:Three (12%) of twenty five patients detected as intermediate and two (8%) patients were poor metabolizer of CYP2C19 polymorphism. One (4%) patient found intermediate metabolizer for CYP3A4 polymorphism. When MDR genotype distribution was compared to controls (23%), the incidence of TT genotype was higher (35%) in ALL cases. CONCLUSIONS:Our results can serve as a basis for large-scale

correlational studies of the enzyme and transporter genotype in cancer treatment in the Turkish population. These results should be guiding the management of chemotherapy in pediatric ALL patiens.
Keywords: Polymorphisms, CYP2C19, CYP3A4, CYP3A5, C3435T, leukemia

PP-123
DETERMINATION OF LET 7 FAMILY EXPRESSION LEVELS ON SICKLE CELL ANEMIA BY RT-PCR

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OBJECTIVES:In recent years, researches have shown that most of miRNA was associated with some human diseases. The purpose of this study is to determinate the Let 7 family expression levels on sickle cell anemia (Hb SS) and normal (Hb AA) cases and to evulate whether the data are statistically significant. MATERIALS and METHODS::In this study, hemoglobinopathy screening of 84 individulas was conducted. Leukocytes of cases were isolated through erythrocyte disruptive buffering. Isolating miRNA's out of leukocytes, Let7c, Let7e and Let7f expression levels of Let 7 family were determined by RT-PCR. Expression levels of cases were calculated by 2-ΔΔCt method and Mann Whitney-U test ($p < 0.05$) was considered statistically meaningful. RESULTS:Out of 84 patients participated in the study, 44 cases were determined having Hb SS, while 40 cases were with Hb AA. When the expression levels of miRNAs of these cases were statistically evaluated, it was detected that the signifiance of Let 7c and Let 7f types expression in Hb SS are evaluated as having higher levels compared to Hb AA and signifiance values of Let7c ($p<0.09$) and Let7f ($p<0.001$). The significant value of Let 7e type between the two groups is $p<0,407$ and it was observed that there is no statistically significant meaningful difference. CONCLUSIONS:Research has shown that Let7c and Let7f in the leukocytes of both groups, the expression levels of those with Hb SS are significantly higher when compared to those with Hb AA which is considered meaningful where in Let7e, no statistically meaningful difference between two groups was observed.
Keywords: miRNA, Sickle Cell Anemia, Mann Whitney U test

PP-124
PUTATIVE PHOSPHORYLATION MOTIFS OF PEA3 BY VARIOUS GROWTH FACTORS

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OBJECTIVES:Pea3/Etv4 transcription factor is one of the ETS protein family member that has critical roles for many celular process. It is regulated by various growth factors including FGF, NGF, GDNF etc. through MAPK signal transduction cascade by phosphorylation of Ser/Thr residues during neural development. Although some phosphorylation sites of Pea3 are known, most of them are not elucidated. Therefore, our goal is to understand the effects of putative Pea3 phosphorylation sites on cell survival, invasion and migration under the conditions of several growth factors. MATERIALS and METHODS:Mimicking and silencing mutations on putative MAPK phosphorylation sites on mPea3 were created by Site-Directed Mutagenesis. The mutant mPea3 plasmids were transfected into the SH-SY5Y human neuroblastoma cells and their protein expression levels were analyzed by Western Blot Analysis. Transfected cells were also induced with diverse growth factors and the protein expressions were checked. Various growth factors are known to regulate Pea3 members at the different stages of development. RESULTS:Studies also show that Pea3 leads to dendritic arborization of motor neurons and retinal ganglion cells in response to diverse growth factors. As supported with our experiments, Pea3 induces axonal growth in various neural model cells, and the protein expression pattern of mutant mPea3s with/without growth factors was diverse. The elucidation of Pea3 activation could be contributed to understand of neuroregeneration mechanism after axonal injuries or nerve crush injuries which trigger the retrograde signaling for proper regeneration. CONCLUSIONS:Finally, cell invasion and migration assay should be performed to investigate their effects on cell migration and invasion.
Keywords: Pea3, growth factors, phosphorylation motifs

PP-125
ANALYSIS OF SOME GENETIC RISK ALLELES ASSOCIATION WITH ASTHMA PHENOTYPE

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OBJECTIVES:Genetic bases of asthma differs according to the populations, and this contributes to epidemiological differences in disease burden, severity and treatment. In this study, the effect of GWAS confaunding genetic traits on asthma phenotype were investigated in Turkish population. MATERIALS and METHODS:DNA samples (n= 920) were enrolled from five different regions of Turkey using ISAAC Phase-II method and the genetic loci (IL18R1 rs3771166, IL33 rs1342326, SMAD3 rs744910, GSDMA rs3894194, IL2RB rs2284033) associated with asthma were analysed by KASP (Competitive Allele-Specific PCR) genotyping system. RESULTS:IL2RB rs2284033*A allele was determined to be associated with wheezing phenotype, which is the most important characteristic of asthma. Children with *A allele were found to have a higher risk of severe wheezing (OR = 0.584; p = 0.0001732) than those with the corresponding allele. Other variants were found not to be associated with asthma and related phenotypes in the Single Variant-Association analysis and the Polygenic Risk Score assessment. CONCLUSIONS:The results of this study provide novel data regarding involvement of IL2RB rs2284033 variant in wheezing.
*This study was supported by Aksaray University Scientific Research Projects Unit.
Keywords: Childhood Asthma, Asthma Genotype, Polymorphic Variant

PP-126
INVESTIGATION OF RETINOIC ACID RECEPTOR BETA GENE EXPRESSION LEVEL IN PTERYGIUM

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OBJECTIVES:Pterygium, which is similar to tumour growth, is an ocular surface disease, characterized by cell proliferation, invasion, and antiapoptosis. Retinoid molecules have inhibitory effect on ocular surface diseases. Retinoic acid (RA) is carried into the nucleus by the cytosolic cellular retinoic acid-binding protein-II (CRABP-II) and cytosolic fatty acid-binding protein 5 (FABP5). CRABP-II target RA to nuclear retinoic acid receptors (RARs). RAR-beta is a nuclear retinoic acid receptors which leading to cellular proliferation inhibition. Also, RAR-beta suppress tumor cell growth. We evaluated in ptergium expression level of RAR-beta gene, can inhibe cell proliferation in the present study. MATERIALS and METHODS:In this study, it was investigated the mRNA expression of RAR-beta by quantitative real-time polymerase chain reaction (qRT-PCR) in 30 of pterygium tissue samples and 30 of normal conjunctiva tissues were obtained from the same eye of patients undergoing surgery. Expression level of RAR-beta was measured by Livak method. Statistical analyses were performed using the SPSS 16.0 software. RESULTS:The results of our study indicated that expression level of RAR-beta downregulated by 1.8 fold in pterygium tissue than normal conjunctiva. CONCLUSIONS:At present study, RAR-beta gene expression level has been evaluated in ptergium. Decreased RAR-beta gene expression level may have an important role in pathogenesis of pterygium.
Acknowledgements: This work was supported by The Scientific and Technological Research Council of Turkey (TUBITAK) 1001 (Grant number: 215S692)
Keywords: Pterygium, Retinoic Acid Receptor Beta, Retinoic Acid Signaling

PP-126
INTRA-ERYTHROCYTE FOLATE LEVELS IN PATIENTS WITH DIABETES MELLITUS

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OBJECTIVES:We aimed to investigate serum vitamin B12, folate and corrected intra-erythrocyte folate (DEFA) levels in patients with diabetes mellitus (DM) and who were using different antidiabetic agents [Metformin, Sulfonylurea, Insulin, Dipeptidyl peptidase-4 inhibitors (DPP-4)]. MATERIALS and METHODS:A total of 300 subjects were included in the study, classified according to their HbA1c levels [<5.7 (Group 1), 5.7-6.4 (Group 2), and ≥ 6.5 (Group 3)]. In addition, the diabetes group (n = 73) was classified according to the antidiabetic agents used (AD-1=Metformin, AD-2=DPP-4, AD-3=Insulin, AD-4=Sulfonylurea, AD-5=Sulfonylurea+metformin). HbA1c was analyzed by TOSOH G8; glucose, triglycerides, HDL-cholesterol, total cholesterol by Roche Cobas 8000; hemoglobin and hematocrit by Sysmex XN-3000 and DEFAserum B12 and folate levels by a Roche Cobas 6000 analyzer. RESULTS:DEFA levels were statistically significantly higher in Group 2 ($p < 0.001$) and Group 3 ($p < 0.001$) than in Group 1. There was a significant difference between DEFA levels of the control group and the patient group using antidiabetic drugs ($p < 0.001$). There was no significant difference between serum B12 and folate levels ($p > 0.05$). Significant differences were found in DEFA levels between control group with AD-1 ($p < 0.001$), control with AD-2 ($p < 0.05$) and control group with AD-3 ($p < 0.001$). CONCLUSIONS:Our findings suggest that the high DEFA results obtained in the diabetic patients may result from the folate and vitamin B12 deficiency the folate trapping in the case of cobalamin deficiency or the supportive vitamin used in this patient group. Keywords: intra-erythrocyte folate, vitamin B12, diabetes

PP-127
ZINC AND IODINE LEVELS AT OUR HOSPITAL IN ISTANBUL GAZIOSMANPASA

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OBJECTIVES:Elements and vitamins have roles in enzymes, hormones, DNA-RNA synthesis, physical growth-development, cellular and humoral immunity, bone mineralization, as well as enzyme coenzymes or prosthetic groups.Fetus, pediatric, puberty, pregnancy and breastfeeding women, the elderly are most affected by lack of groups.Vitamins A, D, B12, iron and iodine deficiencies are the most common and important in the global dimension. In our study, we evaluated zinc and iodine levels.Goiter caused by iodine deficiency is common in Turkey. Iodine deficiency is among the leading causes of preventable mental retardation.Another zinc plays a role in growing, in cell division, in protein synthesis. It enhances cellular immunity, restores the intestinal mucosa and is additionally in the mother's milk. MATERIALS and METHODS:In individuals who are admitted to our hospital in 2018 (age 2-68), zinc and iodine levels checked.Atomic absorption spectroscop (AAS), in zinc serum (n = 97), (reference range 0.7-1.3 µg/ml) and iodine in urine (n = 73) Inductively coupled plasma mass spectrometer (ICP-MS), (reference range ≤ 100 µg/L) were studied. RESULTS:Zinc values were not within the reference range of 29 patients (30%). For iodine in urine, 22 patients were excluded from the reference interval (30%). CONCLUSIONS:As can be seen, zinc and iodine deficiency are detected at a high rate in Gaziosmanpasa province. Also, there are a lot of studies that, In children with iron deficiency anemia, serum zinc levels are low too. The above information and data suggest that it is important to apply new technologies for diagnosing zinc and iodine deficiency in the routine. Keywords: Iodine,Laboratory,Zinc

PP-128
PROTECTIVE EFFECTS OF RANOLAZINE AND BROMELAIN IN ABDOMINAL AORTIC ANEURYSM MODEL IN VIVO

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OBJECTIVES:Abdominal Aortic Aneurysm (AAA) is among the major causes of morbidity and mortality all over the World. Approximately 4-9% of people over 65 are affected. Experimental AAA models are used to determine the factors that play a role in the pathogenesis of abdominal aortic aneurysm, which is an important disease with high mortality. In our study, it was aimed to investigate the results of the combination of Na channel blocker Ranolazin with protective effect against tissue damage caused by AAA and Bromelain, which is reported to be protective against cardiovascular injury, through biochemical findings in rats. MATERIALS and METHODS:Rats were divided into 4 groups (n=6): Control, AAA, AAA + Ranolazin and AAA + Ranolazin + Bromelain. After administration of AAA to rats, saline, Ranolazine or Bromelain was administered for 10 days. MDA and Glutathione (GSH) levels were measured in collected aortic tissues and pro- and anti-inflammatory cytokine levels in serum samples were measured by ELISA RESULTS:TNF-α and IL-10 (pg/ml): Control: 35,3±7,7, AAA: 172,8±15, AAA+Ranolazine: 92,6±3,7, AAA+Ranolazine+Bromelain: 61,4±0,8 ve Control: 78,4±1,6, AAA: 145,5±5, AAA+Ranolazine: 180,8±4,2, AAA+Ranolazine+Bromelain: 209,7±1,2. MDA (nmol/g): Control: 56,9±0,6, AAA: 98,5±2, AAA+Ranolazine:78,7±3,6, AAA+Ranolazine+Bromelain: 70,3±2 ve GSH(µmol/g): Control: 29,4±0,3, AAA: 17,8 ±1,4, AAA+Ranolazine: 23,7±0,2, AAA+Ranolazine+Bromelain: 24,4. ±1,5 CONCLUSIONS:Proinflammatory cytokine levels were significantly decreased and anti-inflammatory cytokine levels were increased ($p < 0.05$). While these drugs increased GSH, MDA was significantly reduced ($p < 0.01$). According to our findings, Ranolazin was found to have protective effect in the AAA model, alone or in combination with Bromelain. Keywords: Abdominal Aortic Aneurysm, Ranolazine, Bromelain

PP-129
EFFECTS OF CURCUMIN AND BORIC ACID ON NEURODEGENERATIVE DAMAGE INDUCED BY AMYLOID BETA (1-42)

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OBJECTIVES:Amyloid-beta(1-42) accumulation in thebrain is an important sign of Alzheimer's disease and has been shown to induce apoptosis and impair cellular integrity. In this study, it was aimed to reveal the protective effects of boric acid (BA) and curcumin, which have antioxidant and anti-inflammatory properties, on amyloid-beta(1-42)-induced neurodegenerative damage. MATERIALS and METHODS:Synaptosomes obtained from the rat cerebral cortex were divided into five groups: Control, 10µM Amyloid-beta(1-42), 10µM Amyloid-beta(1-42)+10 mM BA, 10µM Amyloid-beta(1-42)+10 mM Curcumin, 10µM Amyloid-beta(1-42)+10 mM BA+10 µM Curcumin. Malondialdehyde (MDA) levels, DNA fragmentation levels, acetylcholinesterase (AChE) activities and nitric oxide (NO) levels were measured spectrophotometrically in rat brain synaptosomes. RESULTS:Amyloid-beta(1-42) caused a significant increase in MDA levels, AChE activities, DNA fragmentation values and NO levels as compared the control group ($P<0.01$). Synaptosomes treated with BA showed a significant reduction in MDA and NO levels against amyloid-beta(1-42) exposure ($P<0.01$). In addition, curcumin treatment has been found to cause a significant reduction in AChE activities and MDA levels in synaptosomes ($P<0.05$). Co-administration of BA and curcumin to synaptosomes exposed to amyloid-beta(1-42) resulted in a significant decrease in DNA fragmentation values, MDA levels and AChE activities. The treatment of BA and curcumin separately did not result in a significant decrease in DNA fragmentation values ($P>0.05$). CONCLUSIONS:Results showed protective effects of BA and curcumin on rat brain synaptosomes against amyloid-beta(1-42) exposure. BA and curcumin treatment can have abilities to prevent the alterations of the cholinergic system and inhibit oxidative stress in the cerebral cortex synapses of amyloid-beta(1-42)-exposed. Keywords: Synaptosome, Amyloid Beta(1-42), Curcumin, Boric Acid, Oxidative Damage, Neurodegeneration.

PP-130
OXIDATIVE STRESS, INFLAMMATION AND NF KAPPA B RELATIONSHIP IN PREECLAMPSIA

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OBJECTIVES:Preeclampsia occurs from the second half of pregnancy and it is characterized by endothelial dysfunction, impaired oxidative balance, increased inflammation and consequent hypertension. In this study, we aimed to investigate the oxidant/antioxidant balance, NF-κB level, inflammatory cytokines and systemic oxidative stress levels in placental tissue in preeclamptic pregnancies. MATERIALS and METHODS:For this purpose, 30 preeclampsia and 30 healthy pregnant control groups were included in the study. Fasting blood was collected during 2nd or 3rd trimester of all subjects. During delivery, maternal parts of placental tissues were taken and stored at -80 °C. Tissue malondialdehyde (MDA), glutathione peroxidase (GPx) and catalase (CAT) activity levels were measured by spectrophotometrically. Serum antioxidant status (TAS) and total oxidative stress

(TOS) levels were measured by autoanalyzer and OSİ levels were calculated. Serum interleukin-6, TNF-alpha and tissue NF-κB levels were assayed by ELISA. RESULTS:As a result, serum oxidative stress index (OSI), TNF-alpha and tissue MDA and NF-κB levels were significantly higher but CAT and GPx activity levels were significantly lower in the preeclampsia group compared to controls (P <0.001). For IL-6 level, there was no significant difference between groups. OSI levels were positively correlated with MDA (r = 0.554, p = 0.000) and NF-κB (r = 0.426, p = 0.001), but negatively correlated with CAT (r = -0.609) and GPx (r=-0.470) levels(p = 0.000). CONCLUSIONS:In conclusion, we found increased oxidative stress and apoptosis and decreased antioxidant enzyme activities at tissue level in preeclampsia group. Increased oxidative stress observed in tissue level was reflected in the systemic circulation. Keywords: pregnancy, preeclampsia, oxidative stress, antioxidant balance, apoptosis

PP-132
THE EFFECT OF CURCUMIN AGAINST FLUORIDE AND MERCURY INDUCED NEURODEGENERATION AND OXIDATIVE INJURY

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OBJECTIVES:The aim of this study was to investigate the effect of curcumin(10μM) on neurotoxicity and oxidative stress caused by the application of sodium fluoride(10mM) and mercuric chloride(5μM) on rat brain synaptosomes obtained in vitro to prevent degenerative damage on synaptosomes. MATERIALS and METHODS:In our study, sinapotosomes were prepared using brain obtained from 5 Wistar Albino rats. A Control, B 10 mM Sodium Fluoride, C 5 μM Mercury Chloride, D 5 μM Mercury Chloride+10 μM Curcumin, E 10 mM Sodium Fluoride+10 μM Curcumin, F 10 mM Sodium Fluoride+5 μM Mercury Chloride+10 μM Curcumin six groups were formed. DNA fragmation, Adenosine Deaminase(ADA), Malondialdehyde(MDA) and Superoxide Dismutase(SOD) levels were measured on the synaptosomes. RESULTS:MDA and DNA fragmentation levels significant increased, SOD and ADA levels decreased in the B and C groups compared to the A group($p<0.01$). In curcumin-treated groups D and E, MDA and DNA fragmentation levels decreased, SOD and ADA levels increased statistically when compared with A, B and C groups($p<0.01$). The levels of MDA and DNA fragmentation in the F group were statistically decreased compared to A, B and C groups, whereas levels of SOD and ADA statistically increased($p<0.01$). There was no statistically difference in the levels of MDA, SOD, ADA and DNA fragments in group F compared to group D and E($p> 0.01$). CONCLUSIONS:In our study, it was observed that administration of sodium fluoride and mercury chloride increased oxidative stress and neurotoxicity and damaged the antioxidant system. It has been observed that Curcumin may reduce increased oxidative stress and neurotoxicity Keywords: Brain, Neurotoxicity, Free Radicals, Antioxidant.

PP-133
EFFECTS OF LIPOIC ACID AND DIHYDROLIPOATE ON EXPERIMENTAL RENAL ISCHEMIA-REPERFUSION MODEL

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OBJECTIVES:Ischemia is a restriction in blood supply to tissues and reperfusion injury is the tissue damage caused by blood supply returns to the tissue. Alpha lipoic acid (ALA) and dihydrolipoat (DHLA), a natural antioxidant, can be used for the disease related to oxidative stress. In this study we aimed to investigate the effects of the long and short term usage of ALA and DHLA on oxidative balance in experimental renal ischemia-reperfusion model. MATERIALS and METHODS:Forty male rats (250-300 gr) were divided into 5 groups: control, I/R, I/R+100 mg/kg IP ALA (two weeks), I/R+100 mg/kg IP ALA and I/R+100 mg/kg DHLA before two hours. Forty-five minutes ischemia and 4 hours reperfusion was carried out on renal tissues. Malondialdehyde was assayed from tissue homogenates. Catalase, superoxide dismutase, glutathione peroxidase activities in supernatants were assayed by spectrophotometric method. Serum urea, creatinine, ALT, AST activities, total antioxidant status and total oxidative stress levels were measured by an auto analyzer. Histopathological evaluation was also performed. RESULTS:Tissue SOD, CAT and GSH-Px levels were lower and MDA (nmol/mg prot) levels were significantly higher in I/R group (1,363±0,1715) compared to controls (0,391±0,0488). ($p<0,001$). MDA levels were decreased ($p<0,001$) and CAT, GSH-Px, serum OSI and AST levels were improved in ALA- and DHLA-treated groups. Improvement were more prominent in tissues of DHLA-treated group. CONCLUSIONS:DHLA is more effective in terms of antioxidant effect compared to long and short term ALA treatment in I/R damage. This study was supported by Hatay Mustafa Kemal University, Coordinatorship of Scientific Research Projects. Keywords: Ischemic Damage, Reperfusion, Lipoic Acid, Dihydrolipoat, Antioxidant Enzym

PP-134
EFFECTS OF HEATING AND FREEZING ON ANTIOXIDANT PROPERTIES OF BROCCOLI, CAULIFLOWER, GARLIC AND ONION

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OBJECTIVES:Vegetable and fruit consumption is associated with reduced risk of various diseases including cancer, coronary heart disease, and type 2 diabetes mellitus. Antioxidant compounds play an important role in health benefits of vegetables. Most of the vegetables are consumed after cooking which can lead to physical and chemical destruction. Additionally, fresh vegetables are generally stored in a refrigerator or frozen storage owing to its short-term endurance. The present study aims to investigate effects of heat treatment and freezing on antioxidant properties of garlic, onion, broccoli, and cauliflower vegetables. MATERIALS and METHODS:Antioxidant properties of vegetables exposed to different treatments were evaluated by analyzing total phenolic content, antioxidant activity, and malondialdehyde levels. Total phenolic content, antioxidant activity and malondialdehyde levels were measured by using folin-ciocalteu's phenol reagent, analyzing 2,2-Diphenyl-1-picrylhydrazyl radical scavenging activity and thiobarbituric acid reactive substances method respectively. RESULTS:Heat treatment showed deleterious effects on antioxidant features of onion and garlic. Similarly, antioxidant activity of broccoli was found to decrease by heat treatment. Interestingly, it has been observed that freezing improves antioxidant activity of broccoli and garlic, but lowers those of cauliflower and onion. CONCLUSIONS:Heat treatment and freezing exhibited different effects on antioxidant properties of broccoli, cauliflower, garlic, and onion. Convenient cooking and storage patterns should be identified for each vegetable to obtain best nutritional benefit from antioxidant compounds of vegetables. Keywords: Broccoli, cauliflower, onion, garlic, antioxidant activity

PP-136
SPECIFIC BONE MARKERS AND OXIDATIVE STRESS IN PATIENTS WITH OBSTRUCTIVE SLEEP APNEA SYNDROME

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OBJECTIVES:Obstructive Sleep Apnea Syndrome (OSAS) is characterized by intermittent and repeated upper airway collapse during sleep. Recently, emerging evidence suggests that there is a link between OSAS and ischemia and hypoxia in tissues. Hypoxia may also have an effect on bone metabolism. We aimed to investigate the biochemical markers of bone metabolism and oxidative stress in patients with OSAS. MATERIALS and METHODS:Thirty-five male patients with OSAS (n=35) and age-matched healthy controls (n=32) were included in this study. Fasting blood and first-morning-void urine samples were collected from both study and control subjects. Serum albumin, Ca, ALP activity, total antioxidant status (TAS), total oxidative stress (TOS) and urine creatinin levels were analyzed using an auto analyzer. Oxidative stress index (OSI) were also calculated as TOS/TAS ratio. Serum osteocalcin, C-terminal telopeptide (CTX-I) and urine N-terminal telopeptide (NTX) levels were measured by ELISA. RESULTS:Serum osteocalcin and ALP levels were higher in patients with OSAS compared to controls (respectively, p=0.003, p=0.000). Serum CTX-I and calculated urine NTX levels in patient group were also significantly higher than those of controls (p=0.000). Calculated OSI levels in OSAS patients were significantly higher than healthy controls (p=0.000) and positively correlated with serum ALP activities (r=0.445, p= 0.000). In addition, there was no significant change between groups for serum Ca levels (P> 0.05). CONCLUSIONS:This study suggest that OSAS is related to increased oxidative stress and may be effective in the development of bone-related diseases such as osteoporosis. This study was supported by a grant from Hatay Mustafa Kemal University (Project no, 14034).
Keywords: Hypoxia, OSAS, Specific Bone Markers, CTX-I, NTX

PP-137
INVESTIGATION OF PROTECTIVE EFFECT OF HENNA IN RENAL ISCHEMIA REPERFUSION INJURY

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OBJECTIVES:Free radicals play an important role in the pathophysiology of many diseases such as renal ischemia/reperfusion damage. In this study, we aimed to investigate the effects of Lawsonia inermis L.(henna) on renal ischemia/reperfusion damage. MATERIALS and METHODS:In our study, the rats (n:24) were randomly divided into three groups; control, sham, treatment (henna) groups. While rats in the sham and treatment groups were administered intraperitoneally 0,5 ml saline (0,9% NaCI / kg / day) and 0,5 ml henna (50 mg / kg / day) starting once a day rats the experiment, 1 day ago nothing has been done in the control group. After this procedures, all rats in the three groups the left renal vessels were closed with clamps, 30 minutes of ischemia and 30 minutes of reperfusion were performed. Following reperfusion, rats in the sham and treatment groups were administered with 0.5 ml saline and henna intraperitoneally for 5 days. At the end of the experiment, all rats were sacrificed and kidney tissues were removed. The levels of oxidative/nitrosative stress biomarkers were measured in kidney tissues. RESULTS:In the ischemia/reperfusion group, SOD, CAT activities were decreased, MDA, NO, NTx levels were increased (p<0,05). Decreased MDA, NO, NTx levels and inceased SOD, CAT activities were found in henna treated group (p<0,05). Histopathologic examination in treatment group showed normal findings, and decreased signs of ischemia/reperfusion injury. CONCLUSIONS:The results of this study demonstrate that oxidative/nitrosative damage increased due to ischemia-reperfusion in the kidney tissue of rats, and that henna supplementation significantly inhibits oxidative / nitrosative damage.
Keywords: Renal ischemia-reperfusion, henna, oxidative / nitrosative stress, rat

PP-138
THE EVALUATION OF THIOL-DISULFITE BALANCE, ISCHEMIA ALBUMIN MODIFICATION AND SERULOPLAZMINE AS A NEW

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OBJECTIVES:Alzheimer's disease increasing day by day due to the increase in the share of the elderly population in the general population due to developing health and living conditions, which is an important biopsychosocial problem nowadays, is limited and early diagnosis and effective treatment possibilities are very limited. The aim of this study was to determine the serum levels of oxidative stress biomarkers in the early stages of the disease and to compare these oxidative stress markers with patients with mild cognitive impairment as a precursor form of Alzheimer's disease and to determine whether these markers develop at an earlier stage, MATERIALS and METHODS:30 volunteers with early stage AH according to NINCDS-ARDRA criteria, 19 volunteers with PCA criteria and 30 volunteers with defined criteria were selected from the subjects aged between 55-88 who applied to Gazi University Health Research and Practice Center Neurological Policlinic between 2017-2018 control group were formed. Venous blood samples of volunteers after a one-night fasting were taken and their sera were then stored under appropriate conditions and analyzed. RESULTS:There is a statistically significant difference between the parameters of Native thiol, Total thiol, SS / native thiol, SS / total thiol and percent thiol / total thiol parameters in Alzheimer patients compared with Early Stage Alzheimer (EEAH) Findings, Mild Cognitive Impairment (p & lt; 0.05). CONCLUSIONS:Statistical analysis of the data showed that there was a significant difference between the end-groups and biomarkers for the early diagnosis of Alzheimer's disease, but this complicated matter has to be investigated in more comprehensive and detailed studies.
Keywords: Alzheimer Disease, oxidative stress, thiol-disulfide balance

PP-139
ELEVATED BILIRUBIN LEVEL DUE TO PARAPROTEIN INTERFERENCE

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OBJECTIVES:Several paraprotein interferences has been reported in automated chemistry analyzer. We present a case of a patient with multiple myeloma in whom interference with the bilirubin assay was identified. MATERIALS and METHODS:A 75 years old male, known to have IgG Kappa myeloma, was found to have a total bilirubin 8.72 mg/dL on a routine test without any sign and symptom of hyperbilirubinemia. Serum total bilirubin levels was measured by ARCHITECT c-8000 automated analyzer using the Abbott Bilirubin assay. Unlike serum high bilirubin levels,the analytical indices (lipemia, icter, and hemolysis) were negative. Further sample precipitation of serum with polyethylene glycol (PEG) followed by measurement of the supernatant bilirubin levels was 0.7 mg/dL. RESULTS:Further sample precipitation of serum with polyethylene glycol (PEG) followed by measurement of the supernatant bilirubin levels was 0.7 mg/dL. CONCLUSIONS:Blood specimens from patients with multiple myeloma are known to generate inaccurate laboratory result We reported the case of a patient with have IgG myeloma other than the monoclonal IgM that more often responsible for paraprotein interference. The finding of unexpected laboratory results should be thought a search for an underlying paraprotein.
Keywords: Bilirubin, İnterference, IgG paraprotein

PP-140
DISCORDANT TROPONIN I VALUE IN A YOUNG WOMAN: A CASE REPORT

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OBJECTIVES:We presented a case report on false positive troponin (Tn) I value in a young woman who underwent unnecessary invasive investigations due to a possible heterophile antibody (HA) interference. Our aim is to look at the approaches to be taken into consideration in determining interferences related to Tn assay through this case. MATERIALS and METHODS:A 36-year-old woman applied to the emergency department with chest pain. At presentation, TnI value was found 2.26 ng/mL (99th percentile <0.01ng/mL). Troponin measurements were repeated with alternative platforms. Serum sample of the patient was treated with heterophile blocking tube (HBT). In addition, precipitation with polyethylene glycol (PEG) and serial dilution were applied to serum. RESULTS:Although repeating TnI levels were persistently high, total CK and CKMB were reference range. Incubation of the patient sample with HBT showed 93.1% recovery. All of the Tn results in alternative platforms were found under cut off value and serial dilution of patient serum did not show linearity. After PEG precipitation, TnI value was decreased from 2.34 ng/mL to 0.01 ng/mL (recovery: 0.85%), suggesting antibody interference. CONCLUSIONS:After treatment with HBT, the lack of a change in TnI value does not exclude HA interference. To investigate the presence of interference, the use of multiple methods that can be applied in the emergency laboratory is more reliable than a single method. Early contact with the laboratory is extremely important.
Keywords: Heterophile antibody, Immunoassay, Interference, False positive troponin

PP-141
MONOCLONAL GAMMOPATHY CAUSING DIRECT BILIRUBIN INTERFERENCE: CASE REPORT

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OBJECTIVES:A 73-year-old female patient with complaints of fatigue and pathologic fracture was sent to our laboratory for routine biochemical testing by our hospital's Internal Medicine Clinic with the suspicion of multiple myeloma. MATERIALS and METHODS:A 73-year-old female patient with complaints of fatigue and pathologic fracture was sent to our laboratory for routine biochemical testing by our hospital's Internal Medicine Clinic with the suspicion of multiple myeloma. RESULTS:BUN, creatinine, LDH, sodium, potassium, calcium and total bilirubin of the patient's clinical biochemical tests were found in the reference range. Total protein 11 g/dL, albumin 2.5 g/dL, CRP 2.05 mg/dL, and direct bilirubin were found to be 4.83 mg/dL (with diazo method) while total bilirubin 0.71 mg/dL (with diazo method in the presence of surfactant). The protein electrophoresis of the patient with normal whole blood count showed monoclonal gamapathy in gamma band and IgM level in IFE test. CONCLUSIONS:The mismatch in the patient's bilirubin results could not be resolved by the test repetition and we interviewed with the requesting physician. It was understood that the patient had multiple myeloma, leading to the direct bilirubin interference of circulating high Ig pattern. Direct bilirubin 0.1 mg/dL and total bilirubin 0.2 mg/dL were measured when paraprotein was precipitated when the patient's serum was put in a test tube which contained polyethylene glycol. Incorrect high results in direct bilirubin measurements and also erroneous low HDL cholesterol and hemoglobin measurements in the literature can be corrected by PEG precipitation in monoclonal gamapaties.
Keywords: Monoclonal gammopathy, Direct bilirubin, Interference

PP-142
UROGENITAL MYIASIS CAUSED BY PSYCHODA ALBIPENNIS

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OBJECTIVES:Myiasis is the infestation of live human and vertebrate animals with larvae (maggots) of flies from the order Diptera, which, at least for a certain period, feed on the host's dead or living tissue, liquid body-substance or ingested food. Myiasis cases are often encountered in humans, especially in tropical and subtropical regions. Urogenital myiasis is one of the facultative myiasis cases that may be seen in humans. Psychoda albipennis is an insect species that causes urogential myiasis in humans Adults of this species, belongs to the Psychodidae subfamily, lives especially in humid toilets and domestic bathrooms MATERIALS and METHODS:In this report, we describe urogenital myiasis caused by Psychoda albipennis in a 33-year-old woman. One Psychoda albipennis larvae was detected in the urine examination of the patient, who referred to our hospital claiming to have seen small, black, active particles like larva. The complaints of the patient disappeared after urinary system antiseptic treatment. This rarely seen case, which does not require specific treatment, is reported to call attention to urogenital myiasis. The patient had normal urinalysis, stool microscopy and urine culture. RESULTS:Larvae were examined under a microscope and were identified as fourth period larvae of P. albipennis CONCLUSIONS:The complaints of the patient disappeared after urinary system antiseptic treatment. This rarely seen case, which does not require specific treatment, is reported to call attention to urogenital myiasis.
Keywords: Urogenital myiasis, Psychoda albipennis, Diptera

PP-143
DIAGNOSIS OF WALDENSTROM'S MACROGLOBULINEMIA FROM BILIRUBIN INTERFERENCE VIA REFLECTIVE TESTS

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OBJECTIVES:Reflective testing is analyzing new tests on the patient's same sample by evaluating clinical and laboratory information;in addition to the results on the patient's sample.In this case,thanks to successive reflective tests;diagnosis process of a patient explained. MATERIALS and METHODS:Patient's consent obtained,biochemical measurements were made on AU680-BeckmanCoulter). RESULTS:Serum indices of 66-year-old-male admitted emergency,and any flag on autoanalyzer was checked due to bilirubin results(Total Bilirubin=TB=0,51;Direct Bilirubin=DB=0,83)(mg/dL).Serum's visual evaluation,and indices were normal,no flag detected.When rerun,TB=0,51 and 0,47;DB=-0,27 and -1,13 was estimated.Reaction kinetics of DB measurements were abnormal. Albumin=2,9;Hb=7(g/dL) lead us to think paraproteinemia interference in DB.After dilution(1/3) of sample for eliminating interference,TB=0,6;DB=0,27 was measured.Reaction kinetics were normal,so results were validated.Then,total protein(TP) measured as reflective test.Measuring TP=9.1(g/dL),serum was aliquoted for SPE.Clinician was informed for patient may have a disease with paraproteinemia,and patient should be referred hematology after discharge. When patient's file examined,we learnt he left emergency voluntarily after 1U RBC transfusion.A monoclonal peak was detected in SPE.As another reflective test,IFE performed and IgM-Kappa was observed.Nephelometry also revealed IgM-Kappa increase.When interviewed,we learnt patient applied to family physician with fatigue,dyspnea,and weight loss.When patient's Hb levels noticed;urinalysis,FOBT,ultrasonography(abdomen),endoscopy,colonoscopy planned for suspected malignancy.He'd been taking valsartan+thiazide,metoprolol,salicylate,clopidogrel,metformin for diabetes,hypertension,coronary artery disease.It was learnt he haven't had any hematologic diagnosis yet.Patient was invited to our laboratory to give his results, and directed to hematology.On further examinations,FOBT was negative,urinalysis wasn't significant.Ultrasonography and colonoscopy were "normal";endoscopic biopsy resulted as "atrophic gastritis".The patient underwent bone marrow biopsy,and chemotherapy initiated after result reported as Waldenstrom's Macroglobulinemia. CONCLUSIONS:Laboratories can touch patients by managing interferences well and performing reflective tests efficiently.
Keywords: Interference, paraproteinemia, rational use of laboratory, reflective testing

PP-144
SPURIOUS HIGH PLATELET LEVELS DUE TO ADVANCED MICROCYTOSIS

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OBJECTIVES:The most common causes of spuriously high platelet counts in automated blood counts are advanced microcytosis and fragmented erythrocytes. The platelet and erythrocyte measured parameters and graphs should be carefully examined to prevent erroneous and false high platelet counts. MATERIALS and METHODS:A six-month-old girl applied to our infant pediatric polyclinic. We performed the blood count on the Mindray BC 5800 fully automated blood count device. The platelet method is electrical impedance. We performed manual platelet counting with 1% ammonium oxalate solution in Neubauer counting chamber. RESULTS:We measured the platelet count of the patient by the automated blood count device at 1.711 10 ^ 6 / µL (reference range for age 150 - 600). The platelet screening chart of the patient showed a platelet volume frequency graph that was not similar to the bell curve and continued to the right (> 30 fL) with high frequency. Because the patient had advanced microcytosis, we suspected a pseudo-high platelet count and had a manual platelet count and peripheral blood smear. The manual thrombocyte count result was 396 10 ^ 6 / µL. In erythrocytes, we observed hypochromia, microcytosis, anisocytosis, and poikilocytosis at advanced stages. CONCLUSIONS:If the platelet count is too high, the platelet volume frequency graph on the instrument result screen should be examined. If the expected normal distribution curve shifts to the right, the number of false high platelets should be suspected. The correct values of platelet count must be confirmed by manual platelet counting and examination of the peripheral blood smear.
Keywords: Spuriously high Platelets, Microcytosis, Blood count

PP-145
REFERENCE INTERVAL ANALYSIS OF CLINICAL BIOCHEMISTRY TESTS USING LABORATORY DATA

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OBJECTIVES:Our territory is a region with various civilizations. Turkey intensity of our region also suggests the possibility of a different reference range may be far above the average of Turkey's population. This study aimed to calculate the reference intervals of 18 tests in pediatrics via indirect method on test results performed at Mustafa Kemal University Health Practice and Research Hospital Clinical Biochemistry Laboratory by using hospital database information of patients who applied to polyclinic only once, between 01.01.2015 and 31.12.2016 (2 years) period and to compare these reference intervals with the reference intervals stated in literature provided by the manufacturer. MATERIALS and METHODS:This study is a retrospective study and used A posteriori test data. The results of these tests are outpatient outcomes in eyes, otorhinolaryngology, orthopedics, neurology, dermatology, neurology, physical therapy and rehabilitation, general surgery, endocrinology, infectious diseases, pediatrics, internal medicine, nephrology, gastroenterology and outpatient clinics. The data of the inpatient, oncology and policlinic, emergency outpatient clinic, intensive care, and hematology were not evaluated. The reference range was determined by gender differences. RESULTS:In total of 17 parameters except total protein, total cholesterol, HDL cholesterol, triglyceride, glucose, uric acid, BUN, total bilirubin, direct bilirubin, albumin, gamma-glutamyl transferase, alanine transaminase, aspartate transaminase, alkaline phosphatase, creatine kinase, lactate dehydrogenase and calcium There was a statistically significant difference between the sexes ($p < 0.05$). CONCLUSIONS:In the determination of age groups, the data deducted from the MARS analysis were evaluated by regression analysis. Our study has the first working feature in our country that includes the 46.456 sample, which is a combination of Shapiro-Wilk, Box-plot, Mann-Whitney U, MARS, and Regression analysis.
Keywords: Hospital data, Indirect method, MARS analysis, Reference interval

PP-148
SERUM FOLATE LEVELS IN PATIENTS WITH AUTOIMMUNE THYROID DISORDER

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OBJECTIVES:Folate is an essential nutrient which is required in many pathway including DNA replication,amino acid synthesis and vitamin metabolism. Hashimoto's thyroiditis is the most common cause of hypothyroidism and it is an autoimmune condition in which the antibodies attack direct the thyroid glands. Graves' disease is the other autoimmune disease that leads to over activity of whole thyroid glands and causes hyperthyroidism.Our aim was to investigate the association between circulating Folate levels and thyroid disorders. MATERIALS and METHODS:A total of 193 euthyroid individuals were enrolled in this prospective study, including 47 patients with Hashimoto's Thyroiditis,47 patients with Graves diseases,50 individuals with non-toxic multinodular goiters(MNG) and 49 healthy controls who admitted Selçuk University Medical Faculty between 01.04.2017 and 01.10.2017. Patients with other chronic diseases and using vitamin-containing drug were excluded. Serum Folate analysis was performed with Roche Cobas e601. Statistical analyses were performed using the IMB SPSS,v21. RESULTS:Folate levels were statistically lower in patients with Hashimoto Thyroditis(mean:7.05±2.48 ng/L) and Graves' disease(mean:6.51±3.9 ng/L) compared to control group(mean:9.03±3.98 ng/L)(p=0.005,p=0.002

respectively). Folate levels were not different between control group(mean:11.2±4.1 µmol/L) and MNG group (mean:8.2±3.25ng/L) There was no association between thyroid levels and serum Folate levels. CONCLUSIONS:Our results presented that serum folate levels were lower in patients with autoimmune thyroid diseases.These findings may prove that lower Folate levels may cause an increase in homocysteine that mediate increased risk of cardiovascular diseases in autoimmune thyroiditis.The decrease in serum folate levels in both Hashimoto Thyroiditis and Graves disease may be associated with autoimmune process independent of thyroid hormone levels and course of diseases.
Keywords: Hashimoto, Multinodular Goiter, Folate,Graves Disease

PP-150
THE EVALUATION OF RELATIONSHIP BETWEEN VITAMIN D AND ANTIOXIDANT SYSTEM

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OBJECTIVES:Medical school students are high-risk groups for vitamin D deficiency because they spend most of the day in closed areas due to the intensity of their curriculum and therefore can not benefit from the effects of sunlight. The aim of this study is determine the levels of vitamin D levels of medical school students at the end of the summer and winter and to investigate the relationship between vitamin D and total antioxidant capacity (TAS), ischemied modified albumin (IMA) and thiol. MATERIALS and METHODS:Eighty six healty volunteers (F/M:44/42) were included in the study. Serum 25 (OH) D, TAS, IMA and thiol levels were measured at the end of the winter (February-March 2017) and summer (September-October 2017) consecutively, were measured. RESULTS:It was revealed that at the end of the summer, 79.53% of females and 30.95% of males; at the end of the winter 92.36% of females and 61.9% of male had deficiency of vitamin D. While at the end of the summer there was a negative correlation between vitamin D and IMA levels (p=0.018), at the end of the winter there was a positive correlation between vitamin D and TAS levels (p=0.001). CONCLUSIONS:As in the students who participated in the study, it can be said that the vitamin D levels of those who have been in the closed areas for a long time are low and this affects the antioxidant system adversely. Therefore, it can be recommended that people on these conditions to have vitamin D supplement.
Keywords: Vitamin D, ischemia modified albumin, oxidative stress, thiol

PP-151
ACUTE PHASE PROTEIN LEVELS IN DIFFERENT STAGES OF RENAL DAMAGE IN DOGS NATURALLY INFECTED WITH LEISH

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OBJECTIVES:Leishmaniasis is a zoonotic disease caused by Leishmania infantum that is common in the Mediterranean region. Diagnosis and treatment may be difficult because clinical findings vary according to the stage of the disease.. During the acute phase response, concentrations of plasma proteins such as CRP, SAA, haptoglobin may increase, whereas the PON-1 level may decrease. In the present study, it was aimed to investigate the relationship between stages of renal injury and acute phase protein levels and PON-1 enzyme activity in dogs naturally infected with leishmaniasis. MATERIALS and METHODS:37 dogs naturally infected with leishmaniasis presented to Adnan Menderes University Veterinary Faculty Internal Medicine Clinics were enrolled to the study. The renal injury was staged with Leishvet and IRIS scoring methods. CRP, SAA, haptoglobin and PON-1 levels were determined from the obtained serum samples. RESULTS:SAA and CRP levels in naturally infected dogs with leishmania were significantly higher than healthy controls, but lower than the most severe renal injury stages 4 (Leish-vet) and 3 (IRIS). CONCLUSIONS:It was thought that the cause of this may result from increased urinary excretion due to impaired kidney function. PON-1 levels were found to be lower than healthy controls, although there was no significant difference between haptoglobin levels. There was no difference of the parameters examined in the two different scoring methods used in staging the renal injury and it was concluded that both scoring methods may be used.
Keywords: Leishmaniasis, CRP, SAA, haptoglobin, PON-1, dog