

EVALUATION of TUMOR MARKER TESTS in A HOSPITAL SETTING

Dr. Educ. Member Muzaffer KATAR

Tokat Gaziosmanpasa University

School of Medicine

Medical Biochemistry Dep.

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Introduction

- Laboratory tests are very important in the diagnosis and follow-up of the diseases and the contribution of the test results to the diagnosis of the disease is about 70% .
- The use of laboratory tests has been increasing day by day due to;
 - the shortening of the test result times with the developing technology,
 - the increase in the number and type of tests studied in the laboratories, and
 - the increase of the elderly population and paralel chronic diseases.
- This has resulted in a significant portion of income sources being devoted to health. It is foreseen that health expenditures in these countries will exceed the growth in the economy in the future.

Introduction

- Tumor markers; Biochemical parameters that are released either by the tumor tissue itself or as a result of the metabolic change caused by the tumor tissue and which can be detected in body fluids.
- These measured values may be indicative of a malignant formation, but are not the definitive cause.
- They can also be released for many benign reasons, such as inflammatory conditions and infections.
- Tumor markers are synthesized in much higher amounts than tumor cells compared to normal cells.
- Generally, these substances are in protein structure; they can be found in blood, urine, feces, tumor tissue or other body fluids, but changes in DNA and gene expression are now being used as tumor markers.
- In this study, we aimed to evaluate tumor marker requests of our hospital and investigate the presence of improper use if any.

Materials and Methods

- Retrospective evaluation of the tumor markers (CEA, CA 15-3, CA 19-9 and CA 125) performed by the biochemistry laboratory of Tokat Gaziosmanpasa Research and Application Hospital between 01.Jan.2018 and 31.Dec.2018 was accomplished.
- Our parameters were divided into sub-groups according to being within and above the reference ranges.
- Demographic data, qualitative, and quantitative variables were statistically evaluated

Results

- Total requests were 1420 (40,0%) for CEA, 671 (18,9%) for CA15-3, 868 for (24,5%) CA 19-9, and 585 (16,6%) for CA 125.
- For age intervals; 57-77 years was most common for female and males (502(42,5%), 324(62,3%) respectively and $p < 0,001$)
- Female (69,4%) and Male (30,6%) for all markers.
- A significant difference between genders for CEA and CA 125 was determined ($p < 0.001$ and $p: 0.033$, respectively).
- 312 (22%) of CEA, 202 (30.1%) of CA 15-3, 204 (23.5%) of CA 19-9, and 113 (19, 3%) of CA 125 requests were above the reference ranges.
- Significant positive correlations were determined between age and tumor markers of CEA, CA 15-3, and CA 19-9 ($r: 0,262$, $p < 0,001$; $r: 0,096$, $p: 0,013$; $r: 0,090$, $p: 0,008$; respectively).

Results

- Preliminary diagnoses were neoplasia (57,2%), pelvic and perineal pain (8,1%), nonspecific pain (7,6%), metromenorrhea (5,5%), dyspepsia (5,0%), other non-specific reasons (3,1%), vitamin D deficiency (3,0%), Essential HT (1,2%), thyroid disorders (1,1%), anemia (1,0%), acute vaginitis (0,5%), and anxiety disorders (0,4%).
- Medical Oncology (60,5 %), Obstetrics and gynecology (15,2%), Internal Medicine (10,0%), Gastroenterology (5,5%), General Surgery (2,7%), Endocrine Diseases (2,6%), Oncologic Surgery (0,8%), Radiation Oncology (0,6%) Pulmonary Diseases (0,2%) have made requests.

Discussion

- While health professionals are trying to reduce costs, they can ironically increase laboratory costs by using tests that contribute to early diagnosis and better disease management. However, if the hospital stay can be shortened, the cost is reduced. Laboratory physicians should work more closely with physicians in the clinic. Institutions; design cost-cutting processes, reduced use and improved decision-making test protocols, and clinically cost-effective technologies. It is the job of laboratory experts to help clinicians request the right tests at the right time in the right order.

Conclusion

- This study shows that many outpatient clinics have made excessive amount of tumor marker requests incompatible with preliminary diagnosis suggesting overutilization. This situation causes heavy health cost and workload of hospitals and country.
- Laboratory experts must take more initiative to reduce redundant test requests and thereby decline health expenditures.