



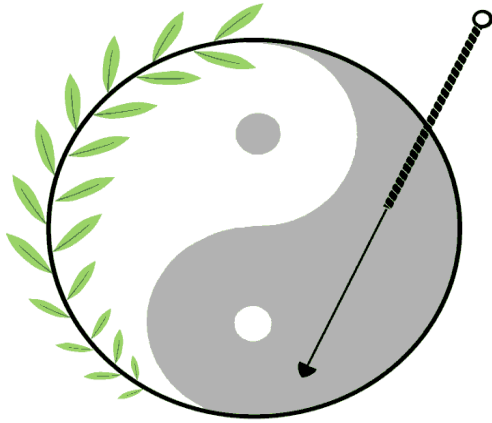
The Impact of Acupuncture Treatment on dynamic thiol–disulphide homeostasis and ischemia-modified albumin levels to assess the oxidative stress in Migraine Patients

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OBJECTIVE

- The aim of this study was to investigate the effect of acupuncture on dynamic thiol–disulphide homeostasis and ischemia-modified albumin (IMA) levels as a novel oxidative stress parameter in migraine patients

MATERIALS and METHODS



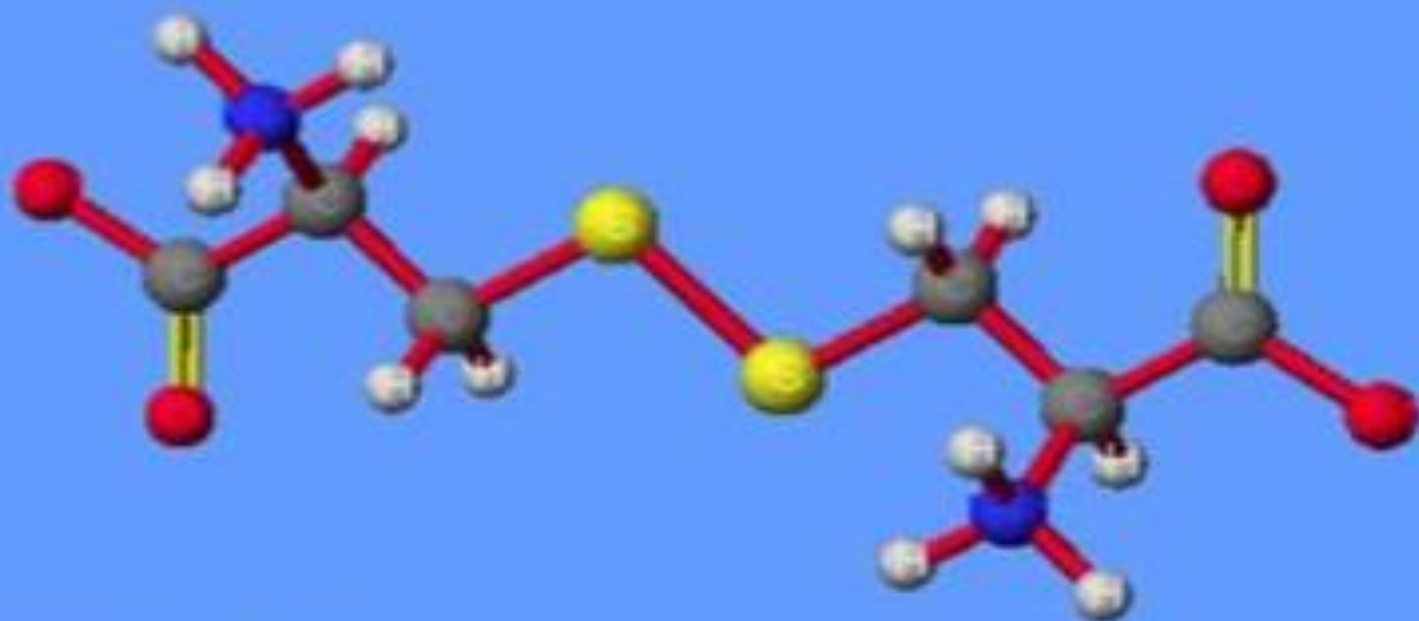
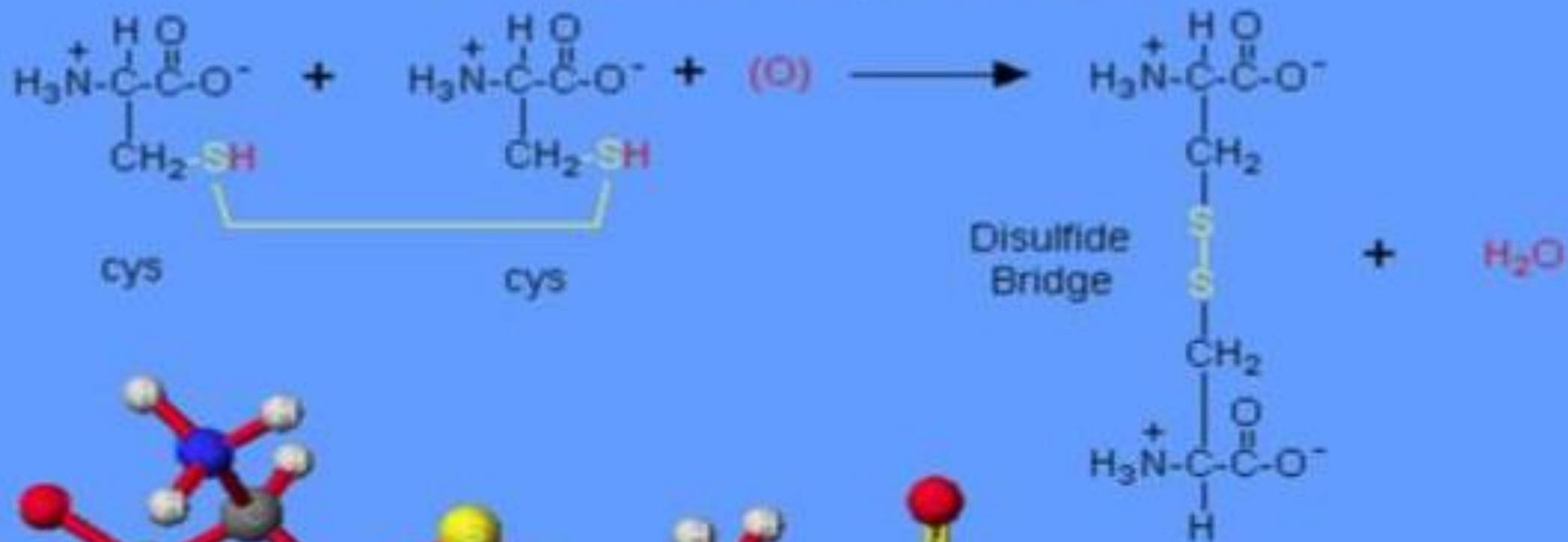
- The acupuncture treatment consists of 5 sessions with 2 sessions per week. Blood samples have been collected before performing acupuncture, after the 5th session of the acupuncture. And for the control group blood samples were collected only once
- In this study, the dynamic thiol–disulphide homeostasis and IMA levels in the serum samples of migraine patients and healthy individuals was determined using an automated method newly developed by Erel et al. [1]

Native Thiol Status Assay Kit
-SH

Dynamic Disulfide Status
-S-S

Total Thiol Status Assay Kit
-SH

Disulfide Bridge Reaction



RESULTS

- There were statistically significant differences native thiol levels patient with pre and post acupuncture groups compare with control group $P < 0.05$. However there was no relationship native thiol levels patient with post acupuncture groups compare with pre acupuncture groups $P > 0.05$.
- There were statistically significant differences total thiol levels patient with pre and post acupuncture groups compare with control group $P < 0.05$. However there was no relationship total thiol levels patient with post acupuncture groups compare with pre acupuncture groups $P > 0.05$.



Table 1 Descriptive statistics of the variables in the patient (*pre – post acupuncture*) and control groups

Variables	Groups			Total
	Control	Patient		
	Mean ± SD	<i>pre acupuncture</i> Mean ± SD	<i>post acupuncture</i> Mean ± SD	Mean
<u>± SD</u>				
Native thiol	375,40±45,20	298,68±50,00	304,34±49,30 *	327,16±58,73 **
Total thiol	437,14±49,70	374,27±48,42	379,69±49,07 *	397,80±56,40 **
Disulphide (S-S)	30,87±12,89	40,50±5,94	34,96± 14,31*	35,32±12,21 **
%SS/ Native thiol	8,33±3,73	14,04±3,81	11,95±5,57*	11,40±5,00 **
%SS/ Total thiol	6,98±2,62	10,84±2,19	9,34±3,65*	9,00±3,27 **
% Native thiol/ Total thiol	86,04±5,24	78,32±4,38	81,33±7,29 *	82,00±6,54**
Klasik İMA	0,41 ± 0,066	0,45± 0,038	0,45±0,032*	0,44 ±0,041**

İMA ischemia-modified albumin –S-S– dynamic disulphide bond, –SH native thiol, –SH +–S-S– total thiol, SD standart deviation

*P >0.05 Compare with patient with pre acupuncture groups.

** P<0.05 Compare with control groups.

- Thiol disulfide balance and IMA levels, which are oxidative stress markers, were increased in migraine patients compared to the control group and this was statistically significant ($p < 0.05$)
- We found that acupuncture treatment caused some decrease in thiol disulfide balance but these results were not statistically significant
- Only 5 sessions could be given to these patients. It is possible that if the number of sessions is increased, a meaningful result can be achieved

- We found that the severity and frequency of migraine attacks decreased with acupuncture treatment.
- We think the effect of acupuncture on dynamic thiol–disulphide homeostasis and IMA in migraine patients has revealed that further animal and human studies are necessary.



CONCLUSION

- This study evaluated dynamic thiol–disulphide homeostasis and IMA levels in the serum of patients diagnosed with migraine using a novel automated colorimetric method. (1)
- Because oxidative stress plays an important role in the pathogenesis of many diseases, thiol chemistry has been recognized as increasingly important. (2)

references

1. Erel O, Neselioglu S . A novel and automated assay for thiol/disulphide homeostasis. Clin Biochem 47:326–332,2014.
2. Eren Y, Dirik E, Neselioglu S, Erel O. Oxidative stress and decreased thiol level in patients with migraine: cross-sectional study. Acta Neurol Belg 115(4):643–649, 2015.



Thank you for your attention