

Serum Paraoxonase-1 Changes in Thermal Burn Patients

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Abstract

Introduction: An increase in oxidant concentration or a drop in anti-oxidants leads to an imbalance in oxidant/anti-oxidant equilibrium and a condition called oxidative stress. It seems that recovery from anti-oxidant decrease in this situation can help reduce the effects of the disease and accelerating recovery. Therefore, the present study was designed aiming to evaluate changes in serum paraoxonase-1 levels in thermal burn patients. **Methods:** This prospective case-control study was carried out from July to October 2014 on thermal burn patient hospitalized in the emergency department of Motahari Hospital, within 4 hours of burning. The control group were healthy people. A checklist consisting of demographic data, medical history, test results, paraclinical measures taken, and serum paraoxonase-1 level was filled for both groups. Finally, SPSS version 19 was used for statistical analysis and comparing the results between the 2 groups. **Results:** 33 thermal burn patients were compared with 53 healthy people as the control group. Mean age was 36.61 ± 9.09 years in control group and 37.69 ± 11.52 years in burn group ($p = 0.632$). Mean burn percentage in patients was 30.76 ± 23.37 (3 – 100). The 2 groups were not significantly different regarding baseline characteristics ($p > 0.05$). Mean serum paraoxonase-1 level in case and control groups were 228.52 ± 136.8 and 350.65 ± 149.08 IU/lit, respectively ($p < 0.001$). No significant correlation was detected between paraoxonase1 activity in thermal burn patients and their burn percentage ($p = 0.532$). Subgroup analysis results revealed the significant confounding effect of albumin and high density cholesterol levels on paraoxonase1 activity. **Conclusion:** Based on the results of the present study, it seems that although the level of paraoxonase-1 anti-oxidative activity in thermal burn patients is low, since albumin and high-density cholesterol levels are low, burn might not be the only cause.

Keywords: Burns; oxidative stress; clinical enzyme tests; PON1 protein, human [Supplementary Concept]
