

QUANTITATIVE MEASUREMENT OF OXIDATIVE STRESS AND ANTIOXIDANT RESPONSE IN CHILDREN WITH BURN INJURY

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Aim: Quantitative evaluation of oxidant /antioxidant status in children with burn injury.

Method: A total of 20 children (9 months to 14 year-of-age) who have 2nd and 3rd degree burn with a proportion of 15-40% were included in the study. Control group is included 20 healthy children with similar age range. Children who have other known diseases and with chronic drug use were excluded. Plasma total oxidative status (TOS), total antioxidative status (TAS) and oxidative stress index (OSI) were measured between first and fifth days of burn injury. Student-t test was used for statistical analysis.

Results: Plasma level of TOS was significantly elevated and level of TAS was significantly decreased in burn patients. As a ratio of TOS and TAS, OSI was also found to be significantly higher in children with burn injury ($p < 0.05$).

Discussion: Systemic inflammatory mediators produced in response to burn injury results in tissue damage at 1st and 3rd days of injury. Excessive production of proteases and oxidant mediators increases capillary and epithelial damage. In our study toxic mediators determining TOS were significantly elevated in burn patients.

Conclusion: Although with a small number of patients, our study shows significant changes of oxidant and antioxidant status of children with burn injury. As a result, use of antioxidant medications during first week of burn injury may decrease tissue injury and improve wound healing.