

**Materials and Methods:** The study group consisted of 40 patients with thermal burns which were in treatment in the Burns, Reconstructive Plastic Surgery Department, Institute of Mother and Child, Department of Surgery, orthopedics and pediatric anesthesiology of IP SMPHU, "Nicolae Testemițanu".

**Results:** Our study demonstrated that children with burn disease, presented an increased serum transferrin level at all stages of clinical course of the disease, but only the values recorded on admission, during the toxemia and on discharge were statistically relevant (+9 % compared to control group,  $p < 0.05$ ). Increased transferrin level can be seen as a response reaction to thermal injury, which contributes to increase the nonspecific resistance of the organism. It is proved that the physiological role of transferrin is essential for the activation of the iron transportation cell renewal and proliferation, the stimulation of iron - containing hemic proteins synthesis, particularly the ribonucleotidreductaza - enzyme which catalyzes deoxiribonucleotide synthesis and controls the cell DNA synthesis.

**Conclusions:** We concluded that increasing transferrin can be seen as a reaction in response to thermal injury and to the decrease the antimicrobial defense mechanisms, represented also by neutropenia, as circulating neutrophils are responsible for removing bacteria from the bloodstream.

**Key words:** thermal burns, burn disease, children, transferring

## 89. THE STATUS OF LIPID PEROXIDATION IN PATIENTS WITH THERMAL INJURY

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**Introduction:** The role of lipid peroxidation in children aged 0-5 with thermal burns has been and remains an important issue. Currently, there is no scientifically substantiated approach in the evaluation of the oxidation state of lipid peroxidation in the wound and the influence of therapeutic remedies for the topical treatment on these processes as well as the effectiveness of preparations used in the topical treatment of wounds in patients with burns and its consequences.

**Materials and Methods:** The study group includes 40 children aged 0-5 years with thermal burns, who were treated in burn and reparative plastic surgery department, Institute of Mother and Child, Department of Surgery, Orthopedics and Pediatric Anesthesiology IP SMPHU, "Nicolae Testemițanu". Criteria for admission of patients in the study group were: (1) age of children ( 0-5 years); (2) admission later than 72 hours after the accident; (3) The thermal injury as the cause of admission; (4) Burn surface greater than 10 % of TBSA or burn located in shocking areas; (5) The depth of burn - II , IIIA , IIIB and IV degree.

**Results:** The study results demonstrate the presence of true changes in the concentration of the non-polar, hydrophobic (hexane phase) products of lipid peroxidation at all stages of clinical course of thermal injury. Our research revealed increases in the concentration of early HPL and HPL - intermediate polar hexane phase at all stages of clinical course of the disease. The late HPL level has not changed, except on the admission, which established a conclusive statistical decrease in values. Research confirms the causal role of  $O_2$  radicals in the mechanism of cell destruction in thermal burns in children.

**Conclusions:** In the context of the changes mentioned, we can say that oxygen free radicals are very important cellular mediators of tissue injury occurrence, resulting in organ dysfunction, that in some patients - may be irreversible and even lead to death as a result of microcirculation changes and cell necrosis progress, which are already affected by heat. The level of systems and organ disorders is influenced not only by the severity of the trauma, but also by a complex, multimodal treatment.

**Keywords:** lipid peroxidation, oxygen free radicals, thermal injury