

**Methods:** We reviewed literature and emphasized major modern techniques used in cataract surgery. Also we present our comparative study of phacoemulsification and extracapsular extraction on a representative group of patients. We compare subgroups (treated by Phaco and EEC) using the following comparative criteria: age, residence, place of work, days of hospitalization, visual recovery and outcome after surgery, complications etc. Data were analyzed using modern statistical tools and have passed veracity tests (t-student criteria).

**Results:** Patients that underwent Phaco tend to have a shorter period of hospitalization, recover more quickly their visual performances, have fewer complications and in the end have a better outcome.

**Conclusion:** Contemporary management strategies should give to the patients the chance to choose and to be treated by best method. Phacoemulsification appears to be the gold standard in actual management of senile cataract. Thus we should inform patients and primary medicines that early diagnostic and treatment is mandatory for the best outcome.

**Keywords:** cataract, phacoemulsification, extracapsular extraction

## 87. THE ROLE OF NITRIC OXIDE IN THE CLINICAL EVOLUTION OF THERMAL BURNS IN CHILDREN

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**Introduction:** Nitric oxide ( $\text{NO}^-$ ) plays an important role in sepsis and polytrauma. The study shows that in thermal burns  $\text{NO}^-$  is increased.

**Materials and Methods:** Burns, Reconstructive Plastic Surgery Department, Institute of Mother and Child, Department of Surgery, orthopedics and pediatric anesthesiology of IP SMPPhU, "Nicholae Testemitanu", the Laboratory of Biochemistry of IP SMPPhU, "Nicholae Testemitanu". In the study were included patients aged 0-5 years, with thermal burns of II, IIIA -B, IV degree. Burn area was more than 10 % TBSA.

**Results:** In this research, a statistically reliable increase in the concentration of  $\text{NO}^-$  at all stages of clinical evolution in children with thermal burns was demonstrated: in the toxemia phase - by 41 %, after surgery - by 54 % compared with control group. This reflects a vascular hypoactivity, myocardial dysfunction, the need for specific fluid resuscitation, inotropic therapy to improve oxygenation as well as an adequate analgesia and acid-base resuscitation.

**Conclusions:** These data suggest that during the shock, in children with thermal burns, there is an increased level of  $\text{NO}^-$  caused by gram-positive and gram-negative bacteria, which have been identified in patients in the study. Also, the formation of large amounts of  $\text{NO}^-$  in the smooth muscles of blood vessels causes vascular hypoactivity (vasoplegia) to exogenous and endogenous vasoconstrictor agents. We conclude that our research suggests that  $\text{NO}^-$  is a central mediator of hemodynamic disbalances in burn shock.

**Keywords:** nitric oxide, thermal burns, children, burn shock

## 88. CHANGES IN SERUM TRANSFERRIN LEVEL IN THE CLINICAL COURSE OF THERMAL BURNS

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**Introduction:** Patients with severe burns present major multisystem pathophysiological changes. Pathophysiological imbalances include severe hypovolemia secondary to plasma loss, hypermetabolism and immune dysfunction. It is associated with septic complications, multiple organ failure syndrome, with triggers the systemic inflammatory response and infection. The uncontrolled development of these phenomena can lead to MSOF and, in some cases, to death.

**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 SMPPhU, "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 dezoxiribonucleotide 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 SMPPhU, "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