

**MOLECULAR MECHANIZMS OF DEVELOPMENT OF
INFLAMMATORY REACTIONS IN BURNS**

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In burns, interleukin-6 is released, triggering the production of acute-phase proteins in the liver. Hypermetabolism ensues, and at the same time muscle tissue is rapidly broken down. In burn victims, serum IL-6 levels peak approximately one week after the burn, and this increase coincides with an increase in endotoxin levels. Very high plasma levels are observed in dying patients. IL-6 stimulates antibody production (T-cell factor or factor released by T-lymphocytes). It promotes the maturation of B cells into antibody-producing plasma cells.

The further development of inflammatory reactions and infections in burns is associated with oxidants, which are formed to a greater extent in leukocytes than as a result of ischaemia and impaired perfusion of the affected tissues. The appearance of oxidants is also associated with the action of endotoxin, which is another initiator of inflammation. It appears in the circulation several days after the burn. Research by C.K. Ogle et al. has shown that in burn victims, the appearance of toxic symptoms coincides with the production of large amounts of TNF and IL-6 by enterocytes, which, according to the authors, cause toxic manifestations. In response to endotoxin, a large number of mediators are also released, including arachidonic acid metabolites, oxidants, and cytokines, especially TNF. It has been established that the release of a group of mediators, such as oxidants

and arachidonic acid metabolites, is initiated by this cytokine, mainly in the post-burn inflammation phase with endotoxemia and/or infection. Endotoxin also leads to immunosuppression, although the mechanism of this effect remains unclear. It is believed that the main sources of endotoxin are wound surfaces and the gastrointestinal tract.

Currently, many antioxidants, catalase inhibitors, superoxide dismutase and xanthine oxidase inhibitors, as well as a new class of agents called 21-aminosteroids with antioxidant properties, are used for clinical purposes.