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Experimental substantiation of hyperthermic exogenous and endogenous factors prompt neutralization in burn injuries

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Abstract

Background: High mortality and disability of patients with critical and supercritical burns, long-term treatment, unsatisfactory aesthetic and functional results lead to the search for ways to provide assistance aimed at counteracting the formation of a mass of necrotic tissue, which is crucial for life or death of the victim.

Material and methods: The experimental study was performed on 60 sexually mature Wistar rats, which were on a regular diet and weighed 150-160 g. The experimental animals were divided into the main and control groups and were used to simulate burns with boiling water of IIb degree.

Results: The traumatic effect of hyperthermic exogenous and endogenous damage factors of the animals in the main group were immediately neutralized by a gauze napkin soaked in water at a temperature of 18-20 °C immediately after the simulation of burns, the duration of which became the criterion for dividing them into subgroups. In animals of subgroup 1 the time of application of a wet wipe to the burn area was 1 min., in the 2nd subgroup it was 5 min., 3rd subgroup – 10 min., 4th subgroup – 15 min., 5th subgroup – 20 min. The application napkin was changed when it was heated to 34 °C. Such applications were not performed to the animals of the control group.

Conclusions: The conclusion was made on the necessity of prompt neutralization of traumatic action of hyperthermic exogenous and endogenous damage factors as the main elements of burn wound depth. For a broader understanding of action mechanisms of the suggested technology of self-help and mutual first aid as well as the nature of the impact of neutralization directly on the tissues, it is advisable to supplement the research with morphological methods.

Key words: hyperthermic factors, burns, neutralization, first aid, necrotic tissues.

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