THE FUNCTIONAL ACTIVITY OF BLOOD NEUTROPHILS ON DIFFERENT TREATMENT TERMS OF THE PATIENTS WITH FROSTBITES

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Aim: To estimate the functional activity of blood neutrophils (neutrophil extracellular traps-forming – NET, neutrophil respiratory burst function – NBT-tests) at the patients with frostbites taking into consideration the terms of post-warm treatment and its peculiarities.

Method: The object of the study were the patients (n=45) with frostbites (II-III-IV degrees) of feet and hands. The patients were hospitalized at various terms after cold injury – from 1 to 30 days. Spontaneous (NBTsp) and S. aureus-stimulated (NBTst) NBT-tests in blood were carried out for evaluation of neutrophil respiratory burst. The amount of NETs in buffy coat was evaluated before (spontaneous level, NETsp) and after incubation of neutrophils with soluble products of S. aureus (stimulated level, NETst). Normal results of neutrophil functions estimation were considered according to the data of healthy volunteers (n=30).

Result: Within the early rewarming period (up to 2 days) the increase of NBTsp level was registered at the patients with frostbites (p=0.01) while the levels of NBTst, NETsp, NETst didn’t differ from normal values. The later period of postrewarming treatment was characterized with the increasing of NETsp, NETst levels (p=0.015). The continued increasing and the highest levels of NBTsp, NBTst, NETsp, NETst were established both at the patients requiring amputations and at the patients with wound closure failure.

Conclusion: The parameters of functional activity of blood neutrophils can be the predictors of amputations required from the patients with frostbites and can be used for the laboratory monitoring of the wound healing process at these patients.