

## **Výživa u termických úrazů** [Nutrition in Thermic Injury].

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### **Abstract**

Aim of the thesis is summarizing current knowledge about clinical nutrition of patients with severe thermal injuries. Special emphasis is given to specifics of pediatric patients, who in many aspects react differently. The introduction focuses on history of burn medicine including nutrition, classification of burn injuries, prehospital care and role of individual members of the therapeutical multidisciplinary team logically centring on role of the dietitian. Extreme hypermetabolism, persisting a year or longer after the insult, influences nutritional recommendations including energy, macronutrients (protein, fats and carbohydrates) and micronutrients (minerals, vitamins and trace elements). Mode of administration is influenced as well. Specific facts are shown how these characteristics are reflected in daily dietetic therapy at the Clinic of Burn Medicine of the Prague Vinohrady Faculty Hospital (FNKV).

In the investigative part we compare two groups of adult patients with extensive burn injuries. Inclusion criteria were age of 18-65 years, extent of burn surface 20-45%, severity Grade II-III, admitted to intensive care unit and balanced gender ratio. Primary criteria were dynamics of plasma selenium concentrations in both groups. First group received parenteral selenium, the second group selenium provided orally, in both cases in a dosage corresponding to nutritional recommendations and for 5 days after injury. Patients in Group i.v., generally with a higher ABSI value, received parenteral selenium in a recommended daily dose of 400 µg for 5 days. Patients in Group p.o. with a lower ABSI value, received enteral selenium in a recommended daily dose of 100 µg also for 5 days. Administration of selenium was started during 24 hours after injury.

Nutritional intake of the patients was analysed in comparison to nutritional planning and monitored via laboratory parameters relevant for nutrition and burn injury. Secondary parameters were length of hospital stay, length of stay in intensive care unit and number of surgical procedures under total anaesthesia during a 14 day observational period after injury. Initial selenium concentrations in both groups were inside normal concentrations of plasma selenium, values in Group i.v. were in average lower than in Group p.o. Subsequently selenium values in Group i.v. increased substantially compared to the other Group. but also in contrast to the other group decreased after their initial peak. The LOS/%BS parameter was higher for the i.v. Group (1,5 days/1 %TBSA), for the other Group it was 1 day of hospital stay per 1% of burnt body surface. Length of stay in the ICU in Group 1 was longer in average by 14,5 days and total length of hospital stay in this group was longer in average by 22 days compared to the second Group. Due to small size of the groups the study was underpowered to provide statistically significant conclusions. Nevertheless it was obvious, that patients from Group i.v. did not show better nutritional parameters and also did not have shorter hospital stays and stays in the ICU than the second group. So we can conclude, that it cannot be excluded that in patients with a lower severity of burn insult oral selenium supplementation could be used. End effect would be lower patient stress and decreased costs compared to the standard selenium parenteral mode of administration.