

ABSTRACT

The aim of this thesis was to identify and assess the nitrogen balance due to the field of nutritional support, body composition, energy expenditure, utilization of nutritional substrates and their changes during the hospitalization.

Nitrogen balance was determined in 12 men and one woman (age $44 \pm 16,4$ years) with multiple injuries (ISS 40 ± 11) in the ICU based on 2 measurements in the time interval of 1-7 days, as the difference between the received and the excreted nitrogen. The energy expenditure and nutritional substrate utilization nutritional indirect calorimetry, body composition analysis and blood chemistry laboratory were examined at patients. Correlation analysis revealed dependence between nitrogen balance and other monitored parameters and also dependence on the length of their trauma.

Total protein intake averaged $1,40 \pm 0,69 \text{ g.kg}^{-1}.\text{d}^{-1}$. At this dose were recorded negative values of nitrogen balance in the first measurement of the 9-patients and in the second measurement of the whole group. In this work also the results of uptake of parenteral and enteral route were compared. In practice, significant correlations were found between total uptake and energy expenditure ($p = 6,31.10^{-3}$; $r = 0,6$) in the first measurement, and on the other hand negative correlation during the second measurement ($p = 0,036$; $r = -0,59$). Further, correlations between the total length of uptake and trauma ($p = 0,036$, $r = -0,58$) were found. As an important factor affecting the parameters studied became the difference between the lengths of trauma examinations apparent. It correlated with changes in the composition of the total amount of water (TBW), ($p = 0,039$; $r = -0,57$), with a dispensing N in the form of laboratory values U_Urea and U_Krea in the second measurement ($p = 8,5.10^{-3}$; $r = 0,69$ and $p = 3,4.10^{-3}$; $r = 0,80$), with the energy expenditure ($p = 0,041$; $r = 0,57$) and with the nitrogen balance itself expressed as the ratio of N intake and excretion N ($p = 6,53.10^{-3}$; $r = -0,71$).

The work indirectly demonstrated the suitability of administration of increased doses of protein, due to higher output than uptake of nitrogen during

polytrauma, which correlated with lower rates of overhydration and deposition of extracellular fluid at baseline.

Keywords: polytrauma, nitrogen balance, protein intake, parenteral and enteral nutrition.