

ABSTRACT

The aim of this study was to evaluate the influence of nutritional support on energy expenditure and nutritional substrates oxidation, focused on proteins and nitrogen balance, in ventilated polytraumatized patients hospitalized in the intensive care unit.

The study was performed on 15 critically ill patients (12 men and 3 women), their average age was $43,6 \pm 17,5$ years. 7 patients were examined without nutritional support, 8 patients were examined after administration of hypocaloric nutritional support. The examination of fasting patients was conducted after at least 4 hours of fasting. The examination of patients with nutritional support were conducted after at least 4 hours of nutritional support administration. Energy expenditure, resting energy expenditure and nutritional substrates oxidation were measured by indirect calorimetry.

After statistical analysis of measured data was found, that administration of hypocaloric nutritional support did not significantly influence nutritional substrates oxidation. Protein intake correlated with total nitrogen balance ($p = 0,0133$) and muscular condition. Results suggest, that administered proteins were partly used as source of energy instead of muscle protein and partly used a different way, e.g. for tissue reparation. Therefore, nutritional support administration was involved in risk minimalization and prognosis improvement of polytraumatized ventilated patients.

Hypocaloric nutritional support administered from 3rd to 6th day of trauma covered approximately 81 % of energy expenditure. It contained sufficient amount of carbohydrates (106 %), low amount of lipids (54 %) and proteins (57 %).

Keywords: nitrogen balance, nutritional support, polytrauma, ICU