

## **Abstract:**

**Background:** The paper presents a broad view of the issue of providing sufficient nutritional support (enteral nutrition) with a high level of protein for the target group of patients in intensive care. Patients in these types of departments (ARO, ICU) have different metabolic requirements at different time intervals of their acute illness. Understanding the essence of metabolism of essential macronutrients with all the consequences on the organism is the basis for understanding metabolism in intensive care with a significant influence on the different nutritional requirements of these patients and maximizing our efforts to adapt the type of enteral nutrition to the needs of intensive care patients.

**Objective:** The aim of this work was to evaluate the effect of the new enteral formula Peptamen Intense on the nutritional status of patients in intensive care. Assess the possibility of achieving the nutritional target of proteins (energy) according to the guidelines. Evaluate other parameters that influence management of nutritional support in patients with intensive care.

**Methodology:** Ten patients were selected from the workplaces (ARO, JIP) throughout the Czech Republic according to clearly defined input criteria between November 2017 and March 2018. Subsequently, all patients were enrolled in the PIP protocol during their stay in intensive care with a minimum of 5 days of enteral nutrition. The monitoring was completed on the seventh day. Completed data was processed in MS Excel and subsequently evaluated both qualitatively and quantitatively.

**Results:** The results were divided into three key areas: parameters of evaluation the patient group, tolerance, effect on laboratory parameters of the nutritional state and achievement of recommended amounts of proteins incl. energy in these patients. The product tolerance results were very good even when large amounts of enteral nutrition were administered. Achieving the protein target was most surprising, with 80% of patients achieving 100% protein target according to the guidelines over four day period. At the same time, there was no excessive overdose of energy. Nitrogen balance was negative, with positive values observed in two patients during the week, and the remainder monitored patients gradually reduced its negative value.

**Conclusion:** This work has demonstrated the importance of high-protein nutrition in intensive care in a small number of patients, with the most prominent parameter how the organism improves its protein management as the reflection of the nitrogen balance in terms of improvement of the negative values to the positive ones. At the same time, it confirmed the presumption that laboratory parameters in these patients do not reflect the quality of enteral nutrition, either due to a short period of follow-up or as a result of an acute condition. It has clearly demonstrated the possibility of reaching a protein target with this type of nutrition within 5 days in most these patients without the risk of overfeeding or acceleration of hyperglycemia, whether due to good tolerance or a large amount of protein in the diet. For further recommendations, it seems necessary to include more patients in the next monitoring and to modify (simplify) the PIP protocol.

**Key words:** high-protein enteral nutrition, intensive care, nitrogen balance, protein target, albumin, prealbumin, tolerance of enteral nutrition.