

Abstract (jednostránkový souhrn) v angličtině

Growth restriction of premature newborns is a serious complication for the further development of the infant. It is not yet definitely clear to which extent it is associated with the low content of certain macronutrients of human milk. Maternal characteristics may be connected with human milk macronutrients, but no definite conclusions have been made to date. This study aimed to evaluate the content of macronutrients in human milk samples after preterm delivery during the first 9 weeks of lactation and determine the relationship of maternal-associated factors on the content of macronutrients in human milk after preterm delivery. Milk samples were collected from mothers after premature birth between 24⁺⁰-35⁺⁶ weeks. Macronutrients and energy content were analyzed by mid-infrared transmission spectroscopy. A total 1917 human milk samples from were analyzed. Median of protein content decreased from 1.6 g/dL in group A and 1.5 g/dL in group B in the first week of life, to 1.1 g/dL in both groups at the end of week 3, and then remained stable up to week 9. Content of carbohydrates and fat was stable during the whole observation, with interindividual differences. Similarly to colostrum, higher protein content and lower carbohydrates content were observed in primiparous compared to multiparous milk. Vaginal birth was associated with a higher carbohydrate content than after caesarean section. Pre-pregnancy obesity (BMI \geq 30) was associated with increased fat and energy content in human milk, smoking had a negative relationship to fat and energy content. Human milk does not differ as a function of degree of prematurity. No difference in milk composition between the groups was identified. Protein content of preterm human milk decreases during the first 3 weeks of lactation, concentration was less than 1,5 g/100 ml, which was expected reference value and was recorded in 79 % of the samples. The impact of maternal factors on human milk composition should be considered in a strategy of feeding in premature infants. Infrared spectroscopy analysis is a costly but an applicable method for perinatalogical and intermedial centers.

Key words: human milk composition, milk macronutrients, nutrition, preterm delivery, preterm infant