

Analysis of Nutritional Status in Premature Infants with Various Types of Feeding Those

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1. Abstract

1.1. Purpose of the Study: Study the indicators of nutritional status (hemoglobin, total protein, albumin, creatinine, urea, glucose in blood plasma) at birth, in dynamics on the 10th, 20th, 30th day of life in premature newborns with very low and low birth weight at birth. Various types of feeding (breast milk, breast milk in combination with a fortifier and artificial feeding) to assess the ongoing measures for successful feeding and the quality of nursing.

1.2. Materials and Methods: A survey of 118 children aged from birth to 1 month of life, who were divided into groups depending on the type of feeding.

1.3. Conclusion: The study made it possible to present laboratory parameters (hemoglobin, total protein, albumin, creatinine, urea, blood glucose in blood plasma) that characterize the nutritional status of premature infants with very low and low birth weight on various types of feeding (breast milk, breast milk in combination with a fortifier and artificial feeding) and propose measures aimed at optimizing feeding in the neonatal period.

2. Introduction

Nursing and development of newborns born prematurely is a difficult task of modern perinatology. One of the main factors determining the normal growth and development of newborns (especially premature ones) is full feeding [1-3]. The assessment of nutritional adequacy includes not only anthropometric data in dynamics, but also an analysis of nutritional tolerance and, according to indications, a set of laboratory studies, of which the most important are clinical laboratory results (hemoglobin and traditional erythrocyte evaluation parameters) and biochemical parameters characterizing protein metabolism (including an indirect method for assessing visceral protein reserves by the level of urea), iron availability, vitamin status, etc. In the modern scientific literature, data on the nutritional status of premature infants in the neonatal period on different types of feeding are very few and contradictory, which determines the need to continue research on this issue [4,5].

2.2. Purpose of the Study: study the indicators of nutritional status (hemoglobin, total protein, albumin, creatinine, urea, glucose in blood plasma) at birth, in dynamics on the 10th, 20th, 30th day

of life in premature newborns with very low and low birth weight at birth. Various types of feeding (breast milk, breast milk in combination with a fortifier and artificial feeding) to assess the ongoing measures for successful feeding and the quality of nursing.

3. Materials and Methods

A survey of 118 children aged from birth to 1 month of life was carried out in the department of pathology of newborns and premature babies of the Krasnoyarsk Regional Clinical Center for Maternity and Childhood Protection. The first group included 50 children with very low body weight (VLBW), at birth, 3 subgroups were distinguished depending on the type of feeding: breast-fed (BF) 17 children, on "fortified" breast milk with the addition of a fortifier (BF+F) 17 children, 16 children on artificial feeding (AF), in the second group – 68 children with low birth weight (LBW), respectively, 36 children on breastfeeding, 12 children on BF+F, 20 children on AF.

4. Results and Discussion

Evaluation of the nutritional status of children with VLBW has established predominant changes in AF in the form of the development of early anemia of prematurity (10% of cases), high total protein levels in children by the end of the observation period, combined with an increase in urea at all stages of observation and an increase in creatinine levels on day 20 life. In the group of newborns with LBW, comparable data were obtained on the incidence of early anemia of prematurity between subgroups on different types of feeding and lower levels of total protein, albumin and urea in the subgroup of children receiving BF+F. Lower levels of total protein, albumin and urea were found in children receiving breast milk in combination with a fortifier (with comparable values of the indicated laboratory parameters in children on breast and formula feeding). It is important that in children on "fortified" breast milk, the worsened indicators of protein metabolism were combined with lower body weight and calculated indicators of weight gain at various stages of observation. The most likely explanation for the obtained features of protein metabolism may be insufficient intake of the protein substrate with food, impaired protein absorption, dysregulation of protein metabolism against the background of concomitant pathology, etc. At the same time, it should be recognized that the fortification of breast milk in routine practice is characterized by standard approaches without taking into account the recommendations (instructions) for analyzing the composition of breast milk, without agreement with a specialist on the need to prescribe a "fortifier" at home, without resolving the issue of the admissibility of taking this product. (burdened history of allergy to cow's milk proteins), etc. In connection with this, an individual approach to fortification is optimal, focused on the actual composition of breast milk (target, target option) and / or assessment of the metabolic "response" of the child (indicators of protein metabolism).

5. Conclusion

The study made it possible to present laboratory parameters (hemoglobin, total protein, albumin, creatinine, urea, blood glucose in blood plasma) that characterize the nutritional status of premature infants with very low and low birth weight on various types of feeding (breast milk, breast milk in combination with a fortifier and artificial feeding) and propose measures aimed at optimizing feeding in the neonatal period.

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