

DETERMINATION OF THE IMMUNOGLOBULINS LEVEL IN INFANTS BLOOD SERUM DEPENDING ON THE NATURE OF FEEDING

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Key words: children, human milk, natural feeding, artificial feeding, immunoglobulins.

Таянч сўзлар: болалар, она сути, табиий овқатланиш, сунъий овқатланиш, иммуноглобулинлар.

Ключевые слова: дети, женское молоко, естественное вскармливание, искусственное вскармливание, иммуноглобулины.

This article examines a survey of 115 children who were divided into 2 groups. Group I consisted of 37 children aged 15 days to 2 months, group II included 78 children aged 2 to 6 months. The predominant class of immunoglobulins in the blood serum of the examined children was immunoglobulin G. Its concentration in children of the first age group was 5.75 ± 0.26 g/l. The content of immunoglobulin M in the blood serum of the observed children (in group 1- 0.83 ± 0.05 g / l; in group 2- 0.99 ± 0.05 g / l) was significantly higher than in healthy children (0.32 ± 0.14 g) g/l and 0.48 ± 0.16 g/l. The same changes were observed in the concentration of class A immunoglobulin (in group 1, 26 ± 0.05 g / l, in group 2- 0.39 ± 0.03 g / l, in healthy children, The IgA content was 0.07 ± 0.05 g/l and 0.15 ± 0.10 g / l for age groups.

ЧАҚАЛОҚЛАРНИНГ ҚОН ЗАРДОБИДАГИ ИММУНОГЛОБУЛИНЛАР ДАРАЖАСИНИ ОЗИҚЛАНТИРИШ ХУСУСИЯТИГА ҚАРАБ АНИҚЛАШ

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Ушбу мақолада бўйича 115 нафар болалар текширилган ва улар 2 гуруҳга бўлинган. 1-гуруҳ 15 кундан 2 ойгача бўлган 37 нафар боладан иборат бўлган; Текширилган болаларнинг қон зардобида иммуноглобулинларнинг асосий синфи иммуноглобулин G эди. Биринчи гуруҳдаги болаларнинг концентрацияси $-5,75 \pm 0,26$ г/л эди. Кузатилган болалар зардобида иммуноглобулин M нинг таркиби (1-гуруҳда $-0,83 \pm 0,05$ г/л, 2-гуруҳда $-0,99 \pm 0,05$ г/л) таркибида соғлом болаларда ($0,32 \pm 0,14$ г/л ва $0,48 \pm 0,16$ г/л, $p < 0,01$), худди шундай ўзгаришлар A синфидаги иммуноглобулин концентрациясида ҳам кузатилди (1-гуруҳда $-0,26 \pm 0,05$ г/л, 2-гуруҳда $-0,39 \pm 0,03$ г / л, соғлом болаларда IgA таркиби $0,07 \pm 0,05$ г/л ва $0,15 \pm 0,10$ г/л.

ОПРЕДЕЛЕНИЕ УРОВНЯ ИММУНОГЛОБУЛИНОВ В СЫВОРОТКЕ КРОВИ У ДЕТЕЙ ГРУДНОГО ВОЗРАСТА В ЗАВИСИМОСТИ ОТ ХАРАКТЕРА ВСКАРМЛИВАНИЯ

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В данной статье рассмотрено обследование 115 детей, которые были подразделены на 2 группы. I-ю группу составили 37 детей в возрасте от 15 дней до 2 месяцев, во II-ю группу вошли 78 детей в возрасте от 2-х до 6 месяцев. Преобладающим классом иммуноглобулинов в сыворотке крови обследованных детей был иммуноглобулин G. Его концентрация у детей первой возрастной группы составила $-5,75 \pm 0,26$ г/л. Содержание иммуноглобулина M в сыворотке крови наблюдаемых детей (в 1-й группе $-0,83 \pm 0,05$ г/л; во 2-й группе $-0,99 \pm 0,05$ г/л) было достоверно выше, чем у здоровых детей ($0,32 \pm 0,14$ г) г/л и $0,48 \pm 0,16$ г/л. Такие же изменения наблюдались и в концентрации иммуноглобулина класса A (в 1-й группе, $26 \pm 0,05$ г/л, во 2-й группе $-0,39 \pm 0,03$ г/л, у здоровых детей содержание IgA составляло $0,07 \pm 0,05$ г / л и $0,15 \pm 0,10$ г/л по возрастным группам.

Introduction. A full-fledged balanced diet of a child is one of the main factors in maintaining his health and harmonious development. As special studies show, poor nutrition in children leads to an increase in nutritional-dependent diseases. This is due to the unresolved important issues in the organization of baby food and the provision of the younger generation with benign, high-grade products [1,6]. In recent years, nutritional issues for children and adults have been in the focus of attention of medicine and the entire world community. In the world, scientific research institutes of nutrition of an international level have been created, in whose studies the issues of nutrition of the population are considered from the position of international cooperation. In this regard, the problem of nutrition for children and adults is relevant and is included in the list of the most important global problems that have been put forward by WHO and the UN for humanity, along with such problems as environmental protection, energy supply, etc. [2,5,8].

The benefits of human milk are well known to all. Feeding infants with breast milk is one of the factors that ensure the full immunological reactivity of the child [1]. Breast milk protects the baby from infection, allergies, background diseases such as hypotrophy, rickets, allergic diathesis, anemia. Breast milk also contains biologically active ingredients that strengthen the infant's immature system, providing protection against infection, and other ingredients that aid digestion and absorption of nutrients. A sufficient number of works are devoted to the problem of the formation of humoral immunity in healthy and sick children 1 year of age [1,3,4,9]. However, on the issue of the formation of humoral immunity in children with different types of feeding, there are only a few works in which we are talking about newborns and premature babies.

The problem of high-quality and balanced nutrition in our country is a key factor in improving the quality of life of children and adults. The health of the nation, the life expectancy of the population, the demographic situation depend on the quality of food, therefore, it is necessary to solve the problems of organizing food and controlling its quality at the state level [5,7,8].

Purpose of the study. Determination of the level of serum immunoglobulins and the relationship of immunoglobulins with the nature of feeding in infants.

Materials and research methods. Determination of the level of serum immunoglobulins of classes A, M and G in infants was carried out by the method of simple radial immunodiffusion according to Mancini using standards and antisera of the Research Institute of Vaccines and Sera named after V.I. I.I. Mechnikov.

The 115 children examined by us were divided into 2 groups. Group I consisted of 37 children aged 15 days to 2 months; Group II included 78 children aged 2 to 6 months. There were 35 children on natural feeding, on artificial feeding (children received adapted formulas "Detolakt", "Nutrilak", "Nan") 80 children.

Among 37 children of group I, 19 fell ill with ARI, of which 11 children had complications in the form of bronchitis, pneumonia, otitis media, pyelonephritis, and 3 had a combined course of ARI and purulent bacterial infection (omphalitis, pseudo-furunculosis). The remaining 4 children were treated for local purulent catarrhal and purulent infections (omphalitis, pyoderma, pemphigus, pseudo-furunculosis, purulent conjunctivitis, paraproctitis, pyelonephritis).

In group II, the vast majority of children also fell ill with ARI (65). Of these, 27 children had an uncomplicated course, and 38 had complications such as bronchitis, catarrhal and purulent otitis media, bronchiolitis, pneumonia, pyelonephritis, and 15 had a combined course of ARI and bacterial infection in the form of pseudo-furunculosis, abscess, lymphadenitis, osteomyelitis. In most children of both age groups, the disease proceeded against a burdened background: rickets - in 18, malnutrition - in 17, encephalopathy - in 23, exudative diathesis - in 13, iron deficiency anemia - in 11 children.

The predominant class of immunoglobulins in the blood serum of the examined children was immunoglobulin G. Its concentration in children of the first age group was 5.7 ± 0.26 g / l. The level of immunoglobulin G was practically the same as in healthy children [12] of the corresponding age groups (6.17 ± 0.16 g / l and 5.09 ± 0.17 g / l, $p < 0.5$) and did not change during the first 5 months of life.

The absence of an increase in the level of immunoglobulin G in viral and bacterial infections in children of the first months of life indicates the immaturity of their own synthesis of immunoglobulin G in these children, which is consistent with the literature [4]

The content of immunoglobulin M in the blood serum of the observed children (in the 1st group - 0.83 ± 0.05 g / l; in the 2nd group - 0.99 ± 0.05 g / l) was significantly higher than in healthy children (0.32 ± 0.14 g / L and 0.48 ± 0.16 g / L, $p < 0.01$). The same changes were noted in the concentration of class A immunoglobulin (in the 1st group - 0.26 ± 0.05 g / l, in the 2nd group - 0.39 ± 0.03 g / l, in healthy children the Ig A was 0.07 ± 0.05 g / l and 0.15 ± 0.10 g / l, respectively, for age groups, $p < 0.01$). With age, the concentration of immunoglobulins of classes M and A increased. The increase in the content of immunoglobulins A and M in the blood serum is due to viral-bacterial stimulation, and the increase in the level of immunoglobulins M and A with

Table 1.

The content of immunoglobulins in the blood serum of children, depending on the nature of feeding

Children's age	Types of feeding	Concentration of immunoglobulins (M ± m), g / l		
		IgA	IgM	IgG
From 15 days to 2 months	Natural 8	0,20± 0,02	0,84± 0,08	6,58± 0,98
	Artificial 17	0,31± 0,12	0,83± 0,10	5,18± 0,95
2 to 6 months	Natural 41	0,30± 0,05	0,96± 0,09	5,96± 0,60
	Artificial 39	0,47± 0,03	1,01± 0,05	5,55± 0,28

age, apparently, reflects the maturation of the child's own humoral immunity system.

The content of immunoglobulins depending on the nature of feeding in the children we examined is presented in the table.

Results and its discussion. Analysis of the content of immunoglobulins in the blood serum, depending on the nature of the feeding of children, showed that the content of immunoglobulins M and G practically did not depend on the type of feeding ($p > 0.05$). The level of immunoglobulin A with natural feeding was lower than with artificial feeding ($p < 0.02$). This, apparently, can be explained by the earlier maturation of the own synthesis of immunoglobulin A in children on artificial feeding. With natural feeding, this process is delayed due to the passive intake of class A immunoglobulins with mother's milk. The protective role of immunoglobulins A in human milk has been well studied and proven [4]. It is also possible that human milk contains some currently unknown substances that can affect the synthesis of immunoglobulins.

Conclusions. Thus, the studies carried out showed that the content of immunoglobulins M and G practically did not depend on the type of feeding, and the level of immunoglobulin A with natural feeding was lower than with artificial feeding. The data obtained reveal the relationship between the level of serum immunoglobulins and the nature of feeding children in the first months of life and reflect the processes of the formation of the humoral immunity system.

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