

ANALYSIS OF RISK FACTORS AFFECTING THE FORMATION OF INTESTINAL MICROFLORA IN INFANTS BORN FROM ALLERGIC MOTHERS

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<https://doi.org/10.5281/zenodo.15024981>

Abstract

The intestinal microbiota plays a key role in maintaining the physiology and homeostasis of the human body. It has already been established that the formation of the intestinal microflora begins in utero, and the child receives the microflora from the mother throughout pregnancy, childbirth and breastfeeding. The most intensive colonization of the child with maternal and environmental microorganisms occurs in the intranatal and postnatal periods. The composition of the microbiota formed at this time usually depends on the gestational age of the child and the route of delivery, as well as on such factors as the type of nutrition, sanitary and hygienic conditions, medications, etc. In this article, we present the results of our research aimed at investigating the factors affecting the formation of the intestinal microflora in infants born to mothers prone to allergies. We found that allergic diseases of the mother and medications taken during pregnancy, as well as intrauterine infections, premature birth, early transfer of the baby to artificial feeding, etc. Such factors negatively affect the colonization of normal bacteria in the intestine, in other words, the formation of intestinal microflora. As a result, even the most insignificant changes in the intestinal microbiota can trigger sensitization and ultimately the development of allergic conditions in the newborn baby.

Keywords: Atopy, newborns, sensitization, allergy, intestinal microbiota

Introduction. The formation of the gastrointestinal tract (GIT) microbiota is a long and difficult process that begins in utero and continues after birth. The vaginal microflora of the mother surrounding the fetus is considered an important factor in the successful completion of gestation, as well as in the development of the immune system in the newborn. The GI tract of a physiologically born child is partially populated by the mother's microflora, which not only protects the child's body from pathogenic and opportunistic microorganisms, but also reduces the risk of developing chronic diseases [1,2]. On the other hand, breast milk, which contains antibodies against bacteria and viruses and has a high absorbability, is closely involved in the formation of a healthy microbiota of the baby [3,7]. The dynamics of the formation and composition of the intestinal microbiota in a newborn child, which depends on various factors, increases the risk of developing many pathological conditions, including atopy [3,6]. Atopic dermatitis occupies a significant place among the urgent problems of pediatrics as one of the earliest and most frequent factors affecting the constitution and reactivity of the child's body. In atopic infants, the intestinal microbiota undergoes some changes even before the development of allergies. Such microbiological changes that occur lead to the development of sensitization, which causes the activation of opportunistic microorganisms in the intestinal microbiota of the newborn, which can ultimately trigger the development of allergic reactions [1,4,5].

Goal of the work. The aim was to investigate the factors affecting the formation of intestinal microflora in infants born to allergic mothers.

Materials and methods. The study was conducted on 28 (16 boys, 12 girls) infants born to

allergic mothers hospitalized in the neonatal department. In addition to general clinical and laboratory examinations, microbiological analysis of feces was also performed in all patients. Diagnosis of atopic dermatitis was based on anamnestic data, clinical picture of the disease and microbiological analysis of feces.

Results. Anamnesis data revealed that allergy manifested itself in 21 (75%) patients as food allergy, in 4 (14.3%) as nettle rash, and in 3 (10.7%) as Quincke edema. It was determined that the main cause of allergy was sweets and chocolate in 11 (39.3%) mothers, eggs in 8 (28.6%), and antibacterial drugs taken during pregnancy due to exacerbation of acute and chronic diseases in 9 (32.1%). Birth was physiological in 22 (78.6%) cases, surgical (Caesarean) in 5 (17.9%), 19 (67.9%) children were born on time, and 9 (32.1%) were born prematurely. Of the newborns, 10 (35.7%) children were on natural feeding, and 18 (64.3%) were on artificial feeding. In the examined children, allergy symptoms were clinically manifested in the form of strophulus and scaly rash in 18 (64.3%) cases, gneiss on the hairy part of the head in 17 (60.1%) cases, vesiculopustulosis and moist eczema in 11 (39.3%). Among the patients, 6 (21.4%) newborns received antibacterial therapy due to intrauterine infections. Along with signs of atopic dermatitis, 9 (32.1%) patients had signs of acute bronchoobstruction and perinatal damage to the central nervous system (CNS). Mothers complained of causeless crying and periodic anxiety in 16 (57.1%) cases, and 8 (28.6%) of convulsions during feeding. It was found that allergy symptoms among infants are more common in children on mixed and artificial feeding. Microbiological examination of feces revealed significant changes in the quantitative and qualitative indicators of intestinal

microflora in all patients. Thus, bifidobacteria, which are normal inhabitants of the intestine, were detected in only 21 (75%) patients, Escherichia coli in 15 (53.6%), and enterococci in 10 (36.1%) patients.

Conclusion. Thus, it was once again established that allergic diseases of the mother and medications taken during pregnancy, as well as intrauterine infections, premature birth, early transfer of the baby to artificial feeding, etc. such factors can create a risk of developing allergies in a newborn child. Thus, the listed factors negatively affect the colonization of normal bacteria in the intestines of the newborn, in other words, the formation of intestinal biocenosis, leading to certain changes in the intestinal microbiota. As a result, even insignificant changes can trigger sensitization and subsequently the development of an allergic component. Therefore, prevention and correction of changes in the intestinal microbiota of babies born to mothers prone to allergies requires a more serious and effective approach.

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