

НАЦІОНАЛЬНА АКАДЕМІЯ МЕДИЧНИХ НАУК УКРАЇНИ
МІНІСТЕРСТВО ОСВІТИ І НАУКИ УКРАЇНИ
Державна установа «ІНСТИТУТ ОХОРОНИ ЗДОРОВ'Я ДІТЕЙ ТА ПІДЛІТКІВ НАМН УКРАЇНИ»
МЕДИЧНИЙ ФАКУЛЬТЕТ ХАРКІВСЬКОГО НАЦІОНАЛЬНОГО УНІВЕРСИТЕТУ
ІМЕНІ В.Н. КАРАЗІНА

ПРОБЛЕМИ СЬОГОДЕННЯ В ПЕДІАТРІЇ

Матеріали ІХ науково-практичної конференції молодих вчених
з міжнародною участю



Харків 2024

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INVESTIGATION OF INFLAMMATORY IMMUNE RESPONSE AND CHANGES IN THE COMPOSITION OF THE INTESTINAL MICROBIOME IN NEWBORNS WITH BIRTH ASPHYXIA

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Introduction. The development of inflammatory immune response and changes in the functional state of intestine due to birth asphyxia remain an unsolved, acute and urgent problem in the practice of pediatrics and neonatal intensive care, both in Ukraine and around the world.

Purpose and tasks. Investigation of intestinal inflammatory immune response and changes in the composition of the intestinal microbiome in newborns with birth asphyxia by means of a laboratory study of the microbial composition of the intestine and determining the level of fecal calprotectin.

Materials and methods. Feces were collected three times at 2, 3 and 5 weeks of life. Laboratory study of composition of the intestinal microbiome was carried out by the cultural method, the inflammatory immune response was investigated by determining fecal calprotectin. statistical calculations were carried out using excel.

Results. Bifidobacterium levels were gradually increased at 5 weeks of life compared to 2 and 3 weeks of life. Lactobacilli levels were greatly increased at 5 weeks of life compared to 2 and 3 weeks of life. The E.coli levels were almost uniformly elevated throughout the study period. The E.coli with weakly expressed enzymatic properties levels were decreased at 2 weeks of life, but increased at 3 and 5 weeks of life. Opportunistic flora levels were statistically the same indicators during the entire period of the study. Fecal calprotectin levels were elevated at 2 week of life and gradually stabilized during 3 and 5 weeks of life.

Conclusions. Determined changes in the composition of the intestinal microbiome and the level of fecal calprotectin in newborns with birth asphyxia may be related to the successively formation of the gastrointestinal tract and the gradual colonization of the intestine.

COVID-19 INFECTED MOTHER AND NEWBORN

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Introduction. According to the available literature, there are no clear ideas about the frequency of vertical transmission of Covid-19 to a newborn. In some countries, conservative recommendations have been adapted regarding the isolation of a mother and child with Covid-19. Most authors agree that SARS-CoV-2 in newborns is asymptomatic, and the incubation period is usually 3-7 days. During the Covid-19 pandemic, the incidence of newborns increased. Literary data on the state of adaptation of newborns born to women who had Covid-19 before delivery, or born against the background of Covid-19 in the mother, are very few.

Aim: to study the peculiarities of the state of adaptation of the neonatal period in children born to mothers with SARS-CoV-2.

Only cases in which SARS-CoV-2 in a pregnant woman was laboratory confirmed were studied. None of the women had other serious pathologies during pregnancy.

Materials and methods. A retrospective analysis of 52 charts of the newborn's development was carried out. The mothers of these newborns at the time of delivery had clinical signs of Covid-19 of varying degrees of severity: 2 women (3.8%) needed respiratory support through a mask, an increase in body temperature above 39°C was noted in 3 women in labor (5.7%). All newborns underwent a PCR test within 24 hours after birth. A total of 51 maternal and 52 neonatal stories were studied. The age of the mothers is from 19 to 36 years. Childbirth at a gestational age of 39±0.4 weeks. In 2 cases, delivery was performed by caesarean section (fetal distress). In 1 case, dichorionic twins were born.

Results. Only 4 newborns (7.6%) had positive results of PCR tests for Covid-19. The children were assessed for Apgar 7-9 points, immediately after birth they were with their mothers, they were attached to their breasts in the delivery room, they were discharged home for 3-4 days in a satisfactory condition. In these cases, the mothers had Covid-19 without signs of respiratory failure. The maximum body temperature was 38.0°C, and during childbirth it was normal. In 48 (92.4%) newborns, the results of PCR tests for Covid-19 were negative. 44 (84.6%) children were discharged home in a satisfactory condition for 3-5 days.

Four newborns (7.6%) were transferred to the intensive care unit in the first hours of life: 1 - in a state of severe asphyxia (Apgar score 2-4), delivered by caesarean section; 1 - with a diagnosis of hemolytic disease of newborns due to rhesus incompatibility, jaundiced form, the child underwent an exchange blood transfusion operation; 1 - transient tachypnea of a newborn. 1 - intrauterine pneumonia. The last case deserves special attention. Pregnancy 2, the course of pregnancy without features. Childbirth - 2. The course of pregnancy was uneventful. Childbirth - 2. Signs of covid infection in a pregnant woman appeared 6 days before the start of labor. Subfebrile body temperature and lack of smell were observed for 4 days. The PCR test is positive. Childbirth at a gestation period of 38 weeks and 3 days. The child (girl) was born with an Apgar score of 5-6 points with signs of RDS, intrauterine pneumonia, mechanical ventilation from the first minutes of birth. At the age of 25 hours, the newborn died. Pathological-anatomical diagnosis: intrauterine pneumonia, the causative agent is not specified. The PCR test for Covid-19 is negative.

Conclusions. In our study, vertical transmission of Covid-19 was registered in 4 infants (7.6% of cases). Newborns with a positive result of the PCR test were born without pathologies and were discharged home in a satisfactory condition.

PCR tests were negative in the majority of infants (92.4%) born to women with confirmed Covid-19 infection. In one case (1.9%), the child had severe intrauterine pneumonia (the causative agent was not established) with a fatal outcome. The rest of the babies did not have any symptoms that could indicate a Covid-19 infection.

The issue of postnatal infection from mothers also remains debatable. Retrospective data indicate that skin-to-skin contact, breastfeeding, and sharing with infected mothers did not increase the incidence of disease among newborns.

It cannot be ruled out that in cases of severe course of Covid-19, hypoxia and fever, as well as anticoagulant therapy of pregnant women, may be the causes of an increase in the overall morbidity of newborns (asphyxia, IVH).

Our aggregated data were not reliable. Perhaps conducting and detailing more qualitative studies will be able to show some kind of dependence.