

**MODERN ADVANCES IN THE STUDY OF HUMORAL AND CELLULAR IMMUNITY
IN CHILDREN BORN FROM A MOTHER WITH COVID-19.**

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Abstract: Although several studies have provided information on short-term clinical outcomes in children with perinatal exposure to SARS-CoV-2, data on the immune response in the first months of life among newborns exposed to the virus in utero are lacking. The purpose of the study to characterize systemic and mucosal antibody production during the first 2 months of life among infants who were born to mothers infected with SARS-CoV-2.

Keywords. COVID-19 infection, placenta, Apgar scale, inflammation, fibrin, villitis, intervillitis.

Immunologic dysfunction due to coronavirus disease 2019 (COVID-19) is closely related to clinical prognosis, and the inflammatory response of pregnant women may affect the directional differentiation and function of fetal immune cells. Reducing the severity and severity of COVID-19, as well as secondary in women at risk, especially during pregnancy it is very important to take preventive measures to prevent complications. Vaccination against COVID-19 for pregnant women and their newborns can significantly reduce the morbidity and mortality of their babies. It is urgent to introduce methods of prevention of coronavirus infection. The need is focused on the development of effective vaccines against COVID-19 led to many studies. Currently, there is very little information about the vaccination against COVID-19 in pregnant women, and yet there are no specific recommendations for vaccinating pregnant women against COVID-19. 60 pregnant women were taken for examination: 22 women with COVID-19 infection in the 2nd and 3rd trimester of pregnancy infected, a positive result was obtained in the polymerase chain reaction (PCR) analysis (main group), 38 women with uncomplicated pregnancy (control group). Women 20 they were between the ages of 1 and 36. General obstetrics in pregnant women examination, general blood from laboratory tests, urinalysis, coagulogram, vagina bacteriological examination, ultrasound examination; Apgar status of the newborn evaluation according to the scale; morphological and histological examinations of the placenta were carried out. Results. During follow-up, 8 (36%) women were in the 2nd trimester, 14 (64%) were in the 3rd trimester infected with COVID-19 during the trimester. In the 1st trimester in 6 of the patients, in 8 of the patients in the 2nd trimester, the disease is moderately severe level passed. The occurrence of symptoms in case of infection with COVID-19. 22 of the women in the main group also underwent ultrasound examination: 16 (73%) have fetal-placental-uterine blood circulation disorder II A and B levels observed, due to fetal respiratory distress syndrome in 11 (50%). premature termination of pregnancy by emergency caesarean section carried out, in the remaining 5 (23%) women, the method of induction of pregnancy stopped with pregnancy. In 38 women in the control group was born at term by physiological delivery. In the morphological examination of the placenta of women in the control group, 13 (59%) placentas were overweight, calcifications were detected in 18 (82%) patients, the size of the cysts was within the normal range. Conditional no changes in

placenta weight and dimensions were detected in women in the group. Histological according to the results of the examination, 20 (90%) of women in the control group have chronic villitis and intervillousitis was detected. 14 (64%) who had a moderate level of COVID-19 infection decidual in all patients, in 4 (18%) of women who had a light period arteriopathy, atherosclerosis, fibrinoid necrosis were detected. Conditionally healthy women calcifications and increased fibrin tissue were found in 23 (60%) placentas Interventricular thrombi occur in all women with COVID-19 80% of these clots belong to the fetal part of the placenta.

The incidence of critical illness caused by COVID-19 is near 19%, of which most cases progress to acute respiratory distress syndrome and respiratory failure, accompanied by acute immune dysfunction. SARS-CoV-2 infection causes a sharp decline in lymphocyte counts, especially a reduction in CD4 T cells, accompanied by an uncontrolled release of inflammatory cytokines, leading to the second strike and aggravating pathological changes in the respiratory system. The clinical symptoms vary among the infected population, suggesting that individual immune status is related to COVID-19 susceptibility and that immune dysfunction may play an essential role in developing critical illness. Because of the special immunologic status of pregnant women, the maternal inflammatory response to coronavirus infection may affect the structural and functional development of the fetus and neonate. In children, COVID-19 is mild or asymptomatic; however, the virus can remain in the body for a long time, and viral nucleic acids can persist in feces, which implies that there is a possibility of nonrespiratory transmission in children. The immaturity of immunologic function in children and newborns leads to their increased susceptibility to viral infections, while the immaturity of adaptive immunologic development may make their clinical symptoms different from those in adults. Together, these aspects raise serious questions as to why clinical manifestations of infected children and newborns are different from those of adults with immunosuppression and what impact the inflammatory reaction caused by maternal infection has on the immunologic function of the fetus. We speculate that the answers may be related to the immaturity of fetal immunity, especially dominant immune tolerance. Given the critical role of immunologic activity in COVID-19 pathogenesis and the possible influence of infected mothers on the differentiation of immunologic cells in newborns, we analyzed the immunologic status of newborns born to mothers with COVID-19 in the third trimester. The newborn serum immunoglobulin levels were analyzed and showed that IgG levels were similar in the None, Within 1 week, and Over 1 week groups and that there was no significant difference among them. IgM content was slightly higher (at an average level of 0.22 ± 0.04 g/L) than the detection threshold (<0.175 g/L) in 10 cases, whereas in the other 41 cases, the level of IgM was under the detection threshold. The CD19 lymphocyte cell counts in these 10 cases were within the normal range, which suggested that fetal CD19 cells were not activated in the uterus.

Currently, according to statistics from the Cochrane Library There are 1,956,562 cases of COVID-19 in pregnant women, 1203 of them ended in death. US Centers for Disease Control and Prevention Center for Prevention (CDC), World Health Organization (WHO), American professional societies such as the College of Obstetricians and Gynecologists (ACOG), the Royal College of Obstetricians and Gynecologists (RCOG) and others pregnant believe that women are at higher risk of contracting COVID-19. Published information is pregnant in pregnant women of reproductive age compared to women without also showed that in pregnant women infected with COVID-19, premature birth and operative delivery by caesarean section, myocardial damage, there are reports of increased cases of preeclampsia and perinatal death. According to A.

Angelidou and others, he was infected with COVID-19 about 75% of pregnant women with preterm birth completed. In addition, COVID-19 infection of the host tissues inflammation and histoarchitectonic disorders, fetal vascular perfusion It is associated with chorion inflammation (villitis), which is associated with this virus it has a negative effect on perinatal outcomes through injury, that is, new it is characterized by showing other side effects in newborns. We also tested pregnancy in 100 women with COVID-19 based on the study of the history of childbirth, the results of pregnancy and childbirth in them we conducted a retrospective analysis. Those included in the study had the disease COVID-19 was divided into two groups, taking into account the duration of playing: 50 people (1- group)-infected with COVID-19 in the second trimester of pregnancy pregnant women, 50 (group 2) - pregnant women infected with COVID-19 in the third trimester of pregnancy. Pregnant women belonging to both groups infected with coronavirus specific features of pregnancy and childbirth in women assessed by analyzing their medical records obtained from the storage facility. The majority of group 1 and 2 patients with COVID-19 are severely socia it was determined that women with.

Summary. COVID-19 infection is an inflammation of the placenta, like other organs causes it to happen. According to the results, the changes in the fetus are in the placenta due to the changes, if the pregnancy is terminated in time, it is serious in the baby no changes are observed. Placenta during pregnancy with COVID-19 infectio can perform a protective function for the fetus. For this reason, there is little chance of serious diseases in the baby's organs.

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