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**SOME ASPECTS OF CORONAVIRUS INFECTION DURING PREGNANCY****Myronyk O.V.***c.med.s., as.prof.*

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**Abstract.** *The work is devoted to the analysis of literature data on the peculiarities of the course of COVID-19 in pregnant women. Certain features of clinical and laboratory manifestations of SARS-CoV-2 infection have been identified, which should be taken into account for early diagnosis of the disease and assessment of the severity of COVID-19 in pregnant women.*

**Key words:** *COVID-19, pregnant women, early diagnosis*

**Introduction.**

Coronaviruses (CoV) are one of the main pathogens that are grouped in the Coronaviridae family, which primarily affect the human respiratory system. This is one of the viral outbreaks that occur and re-occur around the world. Previous outbreaks of coronaviruses include severe acute respiratory syndrome (SARS)-CoV in 2003 and Middle East respiratory syndrome (MERS)-CoV in 2012, while the new coronavirus, originally referred to as 2019-nCoV and subsequently named SARS-CoV-2, the disease it causes has been named COVID-19, which causes a respiratory infection that can progress to severe pneumonia and, in a small number of cases, death [1,6,8,9]. Although these coronaviruses have been isolated from different humans and animal hosts at different times and in different places, they all belong to a type of coronavirus associated with severe acute respiratory syndrome [11,12].

An increase in the mortality rate requires the identification and protection of vulnerable population groups. When COVID-19 and other CoVs infect pregnant women, it increases the risk of adverse obstetric and neonatal outcomes and leads to severe respiratory disease [4,5]. Preliminary data from numerous studies of influenza and other respiratory infectious diseases have demonstrated an increased risk of obstetric complications in mothers compared to non-pregnant women due to physiological changes that occur during pregnancy. This association has also previously been shown to occur when pregnant women are infected with one of two pathogenic coronavirus infections (SARS-CoV 2 and MERS-CoV) [7,10].

Coronavirus infection in pregnant women complicates clinical treatment, prolonging and complicating the disease and compromising treatment. Researchers still have doubts about the transmission of the new and previous coronavirus infection from a pregnant woman to her fetus, a process called vertical transmission [11-13]. Few cases of coronavirus disease during pregnancy have been published, and because of the possibility of vertical transmission from mother to fetus, there is concern that fetuses may be at risk of congenital COVID-19 and other CoV outbreaks. With the



alarming spread of CoV outbreaks worldwide, a comprehensive understanding of mother-to-fetal transmission of the virus in utero, as well as other emerging viral infections such as Zika virus and Ebola virus, which may threaten the health and survival of the infected mother and fetus, are important for effective infection control and treatment [2-5].

**The purpose of the work:** to assess the impact of coronavirus infection (SARS-CoV-2, MERS-CoV and SARS-CoV) during pregnancy and the possibility of vertical transmission from mother to fetus.

**Materials and methods.** Until the end of April, a systematic search was conducted in PubMed, Web of Science, Embase, Google Scholar, and the Cochrane Library. All authors independently extracted all necessary data using an Excel spreadsheet. Only published articles with fully available data on pregnant women infected with SARS-CoV, MARS-CoV, and SARS-CoV-2 were included. Data on clinical manifestations, maternal and perinatal outcomes were extracted and analyzed.

### **Results and discussion.**

Data from the literature show that the frequency of detection of clinically significant forms of COVID-19 among pregnant women does not differ from the indicators in the general population, but there are certain differences in the frequency of registration of individual clinical manifestations.

During the screening examination of pregnant women during hospitalization in the maternity hospital, it was shown that 15.7% (33 out of 210) were infected with COVID-19, while clinical manifestations of the coronavirus disease were detected in only 20% (7 out of 33) positive for SARS-CoV- 2 [13]. The analysis of clinical manifestations of COVID-19 in 116 pregnant women showed mainly the presence of fever (50.9%) and cough (28.4%), while signs of pneumonia, according to imaging methods, were recorded in 96.3%, and the development of a severe degree – in 6.9% without maternal mortality [14]. As a result of laboratory studies, leukocytosis (31.5%), lymphopenia (43.0%), increased level of C-reactive protein (63.0%) was noted [14]. At the same time, the symptoms of COVID-19 did not depend on the gestational age at the time of SARS-CoV-2 manifestation [15]. Pregnant women with SARS-CoV-2 infection may experience more severe symptoms compared to non-pregnant women. There is little evidence of rapid deterioration in women who had no symptoms after returning from travel but were subsequently diagnosed with severe COVID-19 [2].

Some of them, but not all, had concomitant diseases, such as hypertension, diabetes, cholestasis of pregnancy [2,3,5]. The researchers also reported cases of rapid deterioration of the mother's condition with a diagnosis of cardiomyopathy [13]. Clinical diagnosis is also complicated by the similarity of laboratory abnormalities in both conditions. Therefore, it is difficult to distinguish whether laboratory abnormalities are caused by SARS-CoV-2 infection or preeclampsia, accordingly, treatment strategies may be erroneous. For example, thrombocytopenia [8] and impaired liver function [4] are diagnostic criteria for both preeclampsia and worsening of the course of COVID-19.

A separate study was conducted in the USA on severe conditions in pregnant women with COVID-19. Patients were hospitalized only with a severe course, 7 days



after the first symptoms appeared, and after 2 days they required intubation [1]. Of them, 50% required immediate delivery, which, accordingly, caused a high rate of premature births.

### Conclusions.

Data on the course of the coronavirus disease in pregnant women and the impact of this infection on the course of pregnancy are only accumulating and need further systematization. There are certain features of clinical and laboratory manifestations of SARS-CoV-2 infection that should be taken into account for early diagnosis of the disease and assessment of the severity of COVID-19 in pregnant women.

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