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# COVID AS A REASON FOR CHOOSING A METHOD OF DELIVERY

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**ABSTRACT**
COVID-19 occurs in pregnant women in a mild or moderate form, but in some cases it causes strong inflammatory processes called a cytokine storm, which can lead to a fatal end. COVID-19 can lead to premature birth and more complications in pregnant women over the age of 35 or with a body mass index over 30, as well as in those with concomitant diseases related/or not to pregnancy – hypertension, diabetes, diseases of the respiratory and other systems.
RESULTS: The paper aims to present the aspects of the choice of a method and ways of childbirth in pregnant women with Covid. The study was conducted for the period 2020-2022 in Specialised Hospital in Obstetrics and Gynecology for Active Treatment "Prof. Dr. Dimitar Stamatov" – Varna (SHOGAT - Varna). An analysis is made of the medical documentation of 24 women who have passed through the maternity ward of SHOGAT-Varna. The COVID-19 factor has an impact on normal pregnancy, which can be associated with premature birth or late abortion. Conclusion: prenatal care is the normal course of pregnancy and the birth of a healthy, well-developed baby.
CONCLUSION: COVID-19 during pregnancy is often accompanied by early delivery and deepening of symptoms associated with the severe respiratory syndrome coronavirus 2 SARS-CoV-2. Early diagnosis and timely treatment are the basis for proper obstetric behavior and choice of a method of birth.

**Key words:** pregnant, preterm delivery, COVID-19

## INTRODUCTION

The virus spreads mainly between people during close contact (1) often through small droplets produced by coughing, sneezing, or talking (2). Although droplets are „shot" into the air and when breathing, they usually fall on the ground or on surfaces, rather than being contagious over long distances (3, 4).

Pregnant women can also become infected by touching infected surfaces and then their faces (5). COVID-19 occurs in pregnant women in a mild or moderate form, but in some cases, it causes strong inflammatory processes called a cytokine storm, which can lead to a fatal end. The majority of pregnant women experience only mild to moderate symptoms. A study found that the majority of women who got sick were in the third trimester of pregnancy. Pregnant women experience the infection with COVID-19 worse than others, although the risks to the fetus are small.

During the two years in the pandemic, research groups from around the world have found out that pregnant women infected with COVID-19 have an increased risk of hospitalization and a more severe course of the disease than women of the same age who are not pregnant. The good news is that beta has been spared a severe respiratory infection and does not provoke sickness often. Samples from the patient, from the umbilical cord, and from the blood of the mother and the children showed that the virus rarely passes from the mother to the embryo. However, some preliminary data suggest that the infection with the virus can lead to placenta accreta, which in turn can lead to premature birth and possibly damage to the fetus (6, 7).

One of the poorly researched questions related to the COVID-19 pandemic is whether the infection can be transmitted from a mother to a baby (8). Studies published last December showed

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that in 82 pregnant women who were carriers of COVID-19, no evidence of the virus was found in the blood and umbilical cord of the fetus, and none of the 48 babies tested positive for the virus at birth. The researchers emphasize as a happy advantage that newborns from infected mothers feel well. More complicated is the question of whether the mother's immunity is passed on to the baby. Although antibodies for COVID-19 have been found in umbilical cord blood, it is not yet clear how much they protect the embryo.

However, the public dialogue in our country in the beginning of the epidemic was strongly in favor of operative birth (9). Among the arguments for this was the only study of 19 women in labor in the Chinese city of Wuhan, based on nine cases, one of which ended with a cesarean section. A number of well-known specialists in obstetrics and gynecology took a public position in this direction, a recommendation was made even during one of the briefings of the National Operational Headquarters.

Initial reports from China showed no evidence of the virus passing from a mother to the baby during pregnancy or birth ("vertical transmission"). On March 26, however, new information was published: in one case from Wuhan, there was more serious evidence of vertical transmission of the infection from a mother to the baby. This clearly requires further investigation and the scientific community around the world is closely monitoring all the evidence presented. It is important to emphasize that in all the reported cases of newborns who developed COVID-19 very soon after birth, the babies were already healthy and the disease was relatively mild (10, 11).

Given the facts and evidence available at the time, it is considered unlikely that if the mother is with COVID-19, this will cause problems with the development of the baby. There are cases of babies born by women with symptoms of COVID-19 in China they gave birth prematurely.

Severe viral infections in pregnant women are known to be associated with an increased risk of Premature Birth (12), depression, and autism spectrum disorders in their children. As yet, there is no evidence of the influence of COVID-19 in this direction (13, 14), but unpublished data suggest that it is possible that placental changes caused by the virus can cause premature birth of premature babies, which can cause damage to the unborn child, including the brain.

The purpose of the study is to trace the COVID connection as a reason for the choice of a delivery method. The choice of a suitable method of delivery of mothers with diagnosed COVID-19 in a maternity ward is the main task of the leading delivery team. The methods used are retrospective submission of the medical documentation of hospitalized patients with COVID-19 in SHOGAT Varna, for the period 2020-2021.

## EXPOSITION

The public dialogue in our country, at the beginning of the epidemic, was strongly in favor of operative birth. Among the arguments for this was the only study of 19 women in labor in the Chinese city of Wuhan, based on nine cases, one of which ended with a cesarean section. A number of well-known specialists in obstetrics and gynecology took a public position in this direction, a recommendation was made even during one of the briefings of the National Operational Headquarters.

The recommendations of the international professional midwifery organizations and the World Health Organization (WHO) indicate that 15 to 19 percent of the cases have medical indications for an operative birth. When this proportion is exceeded, it means that many women and their babies are unnecessarily exposed to the short – and long-term risks that C-sections carry with or without an epidemic.

For the period 2020-2021, a total of 12 050 patients have passed through the hospital, of which more than half is the share of those who have passed through the maternity ward (54.76%), with an average hospital stay of 2.62 days **(Table 1).**

Of the women who gave birth, 0.36% had a confirmed concomitant COVID infection and 1.09% were suspected (without a positive test proving the infection). According to the order of the RHI and the Ministry of Health, the multi-profile structures on the territory of the town of Varna were announced as a TH for diagnosis and treatment of the COVID infection of T. pomegranate at the first line (MHAT „St. Anna“ - Varna, Military Hospital - Varna, University Hospital „St. Marina“ - Varna).

***Table 1.*** *Quality indicators of the landline of SHOGAT 2020-2021*

| Department | Posted sick | | Posted | | Deceased | | Average hospital stay | |
|---|---|---|---|---|---|---|---|---|
| | 2020 | 2021 | 2020 | 2021 | 2020 | 2021 | 2020 | 2021 |
| Maternity department | 3328 | 3271 | 2079 | 1997 | 0 | 0 | 2,84 | 2,41 |
| Gynecological department | 1409 | 1505 | 1147 | 1198 | 0 | 0 | 1,60 | 1,40 |
| Department of intensive care | 1476 | 1552 | 0 | 2 | 0 | 1 | 0,00 | 1,00 |
| Department of pathological pregnancy | 655 | 568 | 599 | 527 | 0 | 0 | 3,48 | 3,77 |
| Neonatal department | 2045 | 1956 | 2020 | 1927 | 0 | 0 | 4,62 | 4,58 |
| Department of neonatal intensive care | 230 | 239 | 193 | 212 | 10 | 12 | 12,11 | 17,08 |
| total | 6114 | 5936 | 6038 | 5863 | 10 | 13 | 4,29 | 4,48 |

The analysis of the medical records of pregnant women with the COVID-19 accompanying infection (24 patients with COVID-19 accompanying infection, laboratory-confirmed by the test) found that the choice of a method of delivery, leading is the pathology of pregnancy on the part of the mother and fetus (62.5%), with the main method being surgical delivery **(Figure 1).**

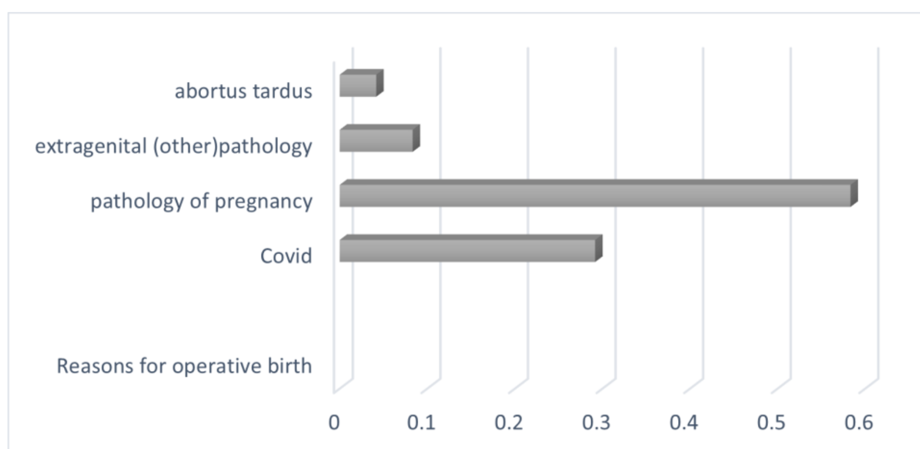


**Figure 1.** Quality indicators of the landline of SHOGAT-Varna 2020-2021.

The leading cause of delivery during the different periods of pregnancy of hospitalized patients is the pathology of the pregnancy itself (for Apostille L.m-58.3%, Urga L.m-21%.m-12.5%, Urga L.M-4%), and the COVID infection is a concomitant diagnosis. About 30% of the cause for the operative approach is COVID-19 **(Figure 2).** A large percentage of births with COVID occurred in the last lunar month (58.3% in the tenth lunar month), and only 12.5% were premature births. Termination of pregnancy occurred in the first trimester, due to progredient abortion, as a result of complications of the COVID infection

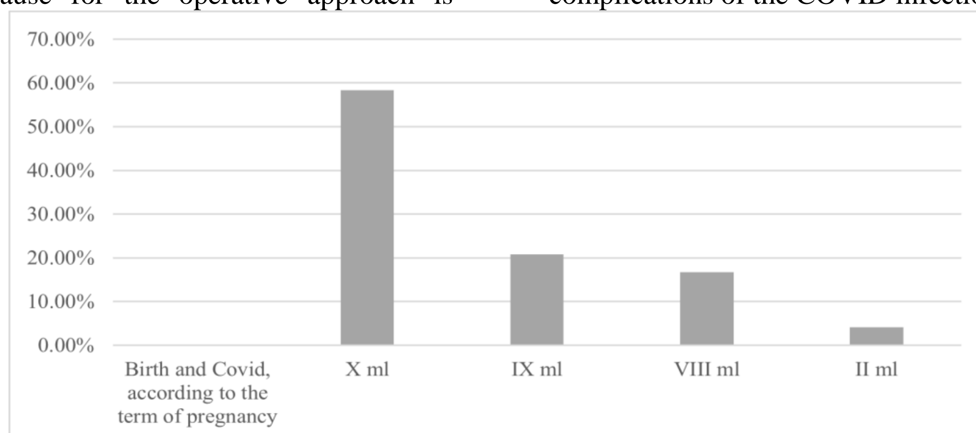


**Figure 2.** Birth and Covid, according to the term of pregnancy

C-section birth occurred in 83,33% of the cases, with only 12,5% of births occurring normally **(Figure 3).**

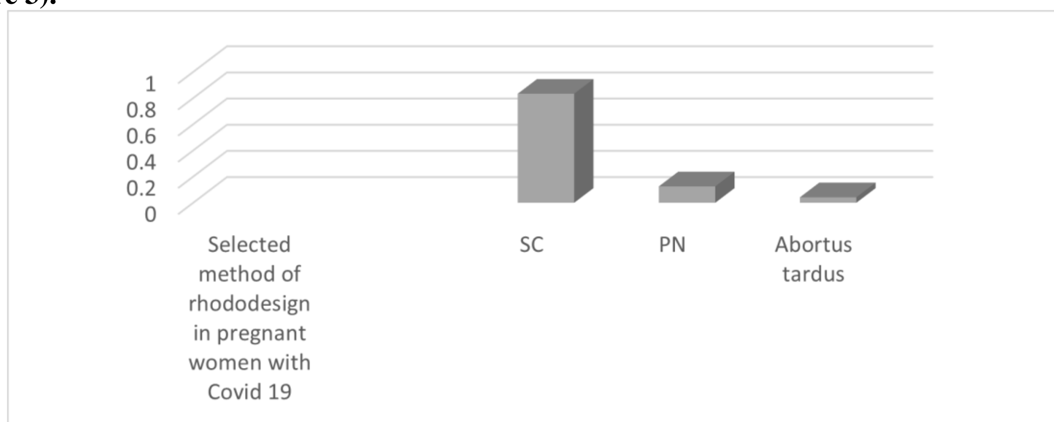


**Figure 3.** Selected method of delivery in pregnancy with COVID-19

The main criteria on the basis of which the choice for operative delivery is made are medical - objective condition, aggravated obstetric history, pathology on the part of the mother, impaired general condition, and deteriorating vital signs. The age distribution of pregnant women with concomitant COVID infection is shown in **Figure 4**. The largest age group is 25-35 years (54.17%) **(Figure 4).**

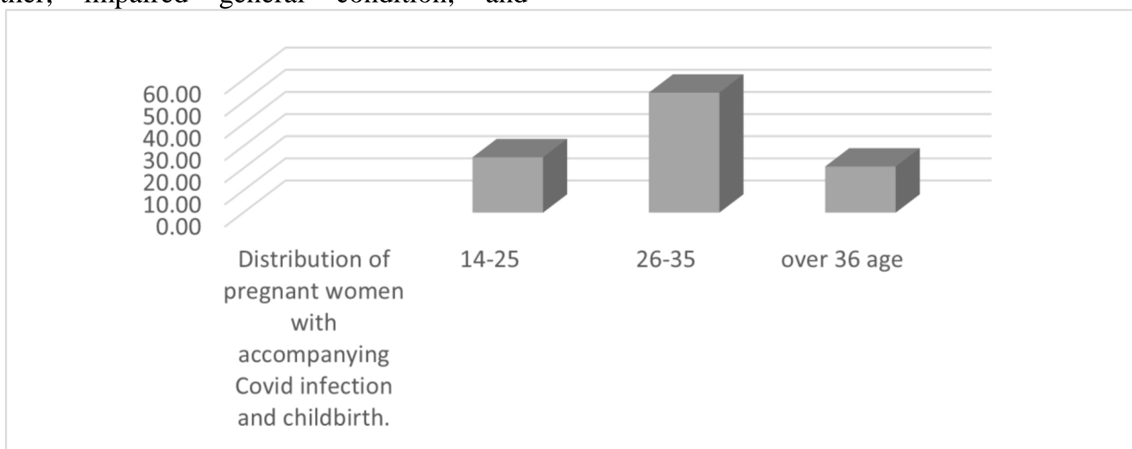


**Figure 4.** Distribution of pregnant women with accompanying Covid infection and childbirth.

Preterm birth occurred in 16.7% and in 4% there was an adverse pregnancy outcome (stillbirth) in those who had COVID accompanying infection **(Figure 5).**

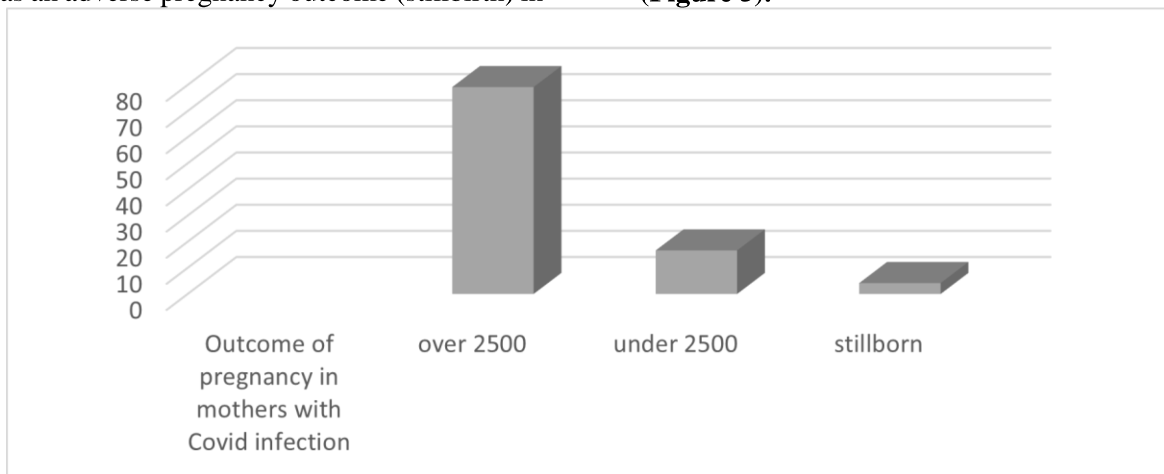


**Figure 5.** Outcome of pregnancy in mothers with COVID infection

At the entrance, upon admission to SHAGAT - Varna, all patients are triaged, through examination and primary obstetric evaluation of the objective condition. All patients suspected of

accompanying COVID infection must be tested with a rapid antigen test (provided by the hospital, for prevention and non-proliferation of COVID as an intra-Hospital Infection). The overall hospitalization process includes activities established by an algorithm of behavior in case of suspected COVID infection:
-Questionnaire;
-Consultation with a hospital epidemiologist;
-Detailed history;
-Confirmed hospitalization test;
-Informed consent;
-Targeting internal sector (triage);
-Service in compliance with the rules for non-proliferation of inside hospital infections and use of personal protective equipment.

All patients were reported through the National diagnosis and disease platform of COVID. Newborns by mothers with COVID are subjected to antigenic testing for COVID-19. All tests of the newborns were negative.

Guidelines issued by the national headquarters, to patients and clinical specialists **(Figure 6)** refer to behavior according to the objective condition and clinical symptoms of the child.

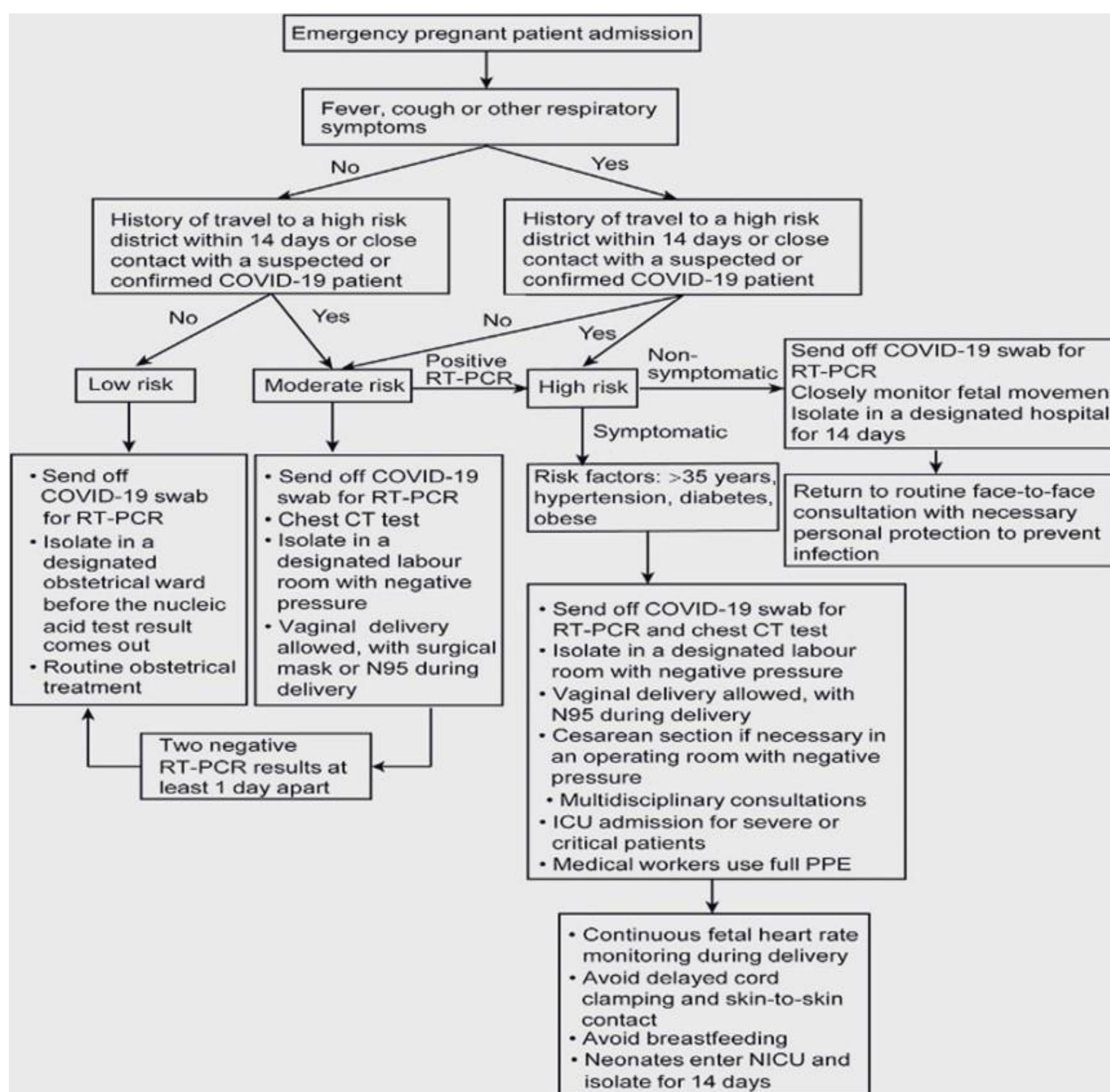


**Figure 6.** Guidelines for behavior of pregnant women with concomitant COVID infection

## CONCLUSION

Early diagnosis and timely treatment are the basis for proper obstetric behavior and choice of a resolution for the method of birth by women with COVID-19. The recommendations regarding births in the context of an epidemic of Covid-19 are not different from obstetric recommendations in an out-of-epidemic period, except for the precautionary measures that the team should undertake. The initial activities and the team's guidelines for selection and method of delivery are leading in determining clinical evidence-based behavior.

Pregnant women have a huge need for safety and support during pregnancy and childbirth. This – especially in times of a crisis – requires clear,

precise, and scientifically substantiated public information. Proper direction and delivery is an essential aspect of quality modern maternity care.

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