DOI: 10.5336/jcog.2020-75346

COVID-19 Infection and Pregnancy: What Do the Societies Recommend?

Berna DİLBAZ[a]

[a]Etlik Zübeyde Hanım Women's Health Training and Research Hospital, Clinic of Gynecology and Obstetrics, Ankara, TURKEY

ABSTRACT There is not yet sufficient data on COVID-19 infection in pregnancy that covers long-term follow-ups. A remarkable number of international organisations and national societies developed guidelines that target what to do in case of COVID-19 infection during pregnancy based on the recent publications that come out on COVID-19 infection during pregnancy and the reports about the obstetric and neonatal complications encountered during the past SARS and MERS epidemics that caused respratory tract infections. In this article the recent recommendations of international organisations and national societies are summarized. While examining these recommendations, a special attention should be made at the fact that these recommendations are updated quite frequently based on the rapid information flow.

Keywords: COVID-19; infection; pregnancy; newborn

During the the course that was initiated in December 2019 by the reported cases wih an unknown cause that resembled viral pnemonia, a novel virus that was named as SARS-CoV or -more recently-as COVID-19 was dentified in the lower respiratory tract samples. Viral infection that spread to the other provinces of China besides Wuhan, Italy, Iran, South Korea, Spain affected almost 1 203 101 person in 206 countries causing 64 743 deaths based on the figures reported at 6th of April 2020. World Health Organization (WHO) estimates that around 210 million women get pregnant annualy.[1] The data printed until now about COVID-19 infection does not demonstrate an increased risk for prenant women. However the past experience with SARS and influenza that cause viral respiratory tract infection demonstrated an increased mortality and morbidity in pregnant women. For this reason, pregnant women and newborns constitute a special group in terms of diagnosis, treatment and follow-up. First report on "clinical features and obstetric and neonatal outcomes of pregnant patients with COVID-19" came from Wuhan Tongji Hospital in March 2020 reporting the delivery of seven patients.[2] In this publication, the clinical manifestations were reported to be fever, cough, shortness of breath, diarrhea and cesarean section was performed in all patients within the firs 3 days of the clinical findings resulting in a good outcome in mothers and neonates and apart from one neonate who became infected after birth the three tested new borns had a negative test result. With the fast worldwide spread of the COVID-19 infection

Correspondence: Berna DİLBAZ
Etlik Zübeyde Hanım Women's Health Training and Research Hospital, Clinic of Gynecology and Obstetrics, Ankara, TURKEY
E-mail: sdilbaz@hotmail.com

Peer review under responsibility of Journal of Clinical Obstetrics & Gynecology.

Received: 14 Apr 2020 ***Accepted:*** 17 Apr 2020 ***Available online***: 20 Apr 2020

2619-9467 / Copyright © 2020 by Türkiye Klinikleri. This is an open
access article under the CC BY-NC-ND license (http://creativecommons.org/licenses/by-nc-nd/4.0/).

many international organisations and many countries developed guidelines for management of COVID-19 infection in pregnant women and neonates. Although the recommendations from these guidelines and protocols are quite similar, the recommendations on mother-baby isolation and breast-feeding shows to have some differences. The reports from China have supported the isolation of the babies born to COVID-19 positive mothers. Also there are no publications on long term effects of COVID-19 infection during early pregnancy on the infants health. The disease was reported to effect mostly older people at first but with the worldwide distribution many reports about affected women of young age, pregnant women and children are coming out. These recommendations will definitely evolve with future studies and publications.

The aim of this review is to summarize the recommendations of some international organizations and national societies in order to be emphasize the importance of having a national guideline that is officially accepted and practiced.

RECOMMENDATIONS OF AMERICAN COLLEGE OF OBSTETRICIANS AND GYNECOLOGISTS (ACOG)

American College o Obstetricians and Gynecologists published an algorithm about " Outpatient Assessment and Management for Pregnant Women With Suspected or Confirmed Novel Coronavirus (COVID-19) as summarized in Figure 1.[3]

ACOG acknowledged the importance of protection from the disease and pointed out that the pregnant women had the same risks as non-pregnant adults. The comments onpregnancy and breast-feeding and protection of the newborn were also published with emphasis on special conditions related to drug use during pregnancy.[4]

Use of aspirin should be evaluated on individual basis in indicated patients and should be continued if required.

Although corticosteroids are not recommended for general population infected with COVID-19, it can be used for lung maturation in pregnant women with a gestational age between 24 0 /7 weeks and 33 6/7 weeks and has a risk of delivering within 7 days. If the mother is in critical state, the need for corticosteroid administration should be evaluated based on independent individual risks regardless of the gestational week.

Although the time of termination of pregnancy is independent of the presence of the disease, in pregnant women with suspected or confirmed novel Coronavirus (COVID-19) if possible the delivery should be delayed until the test becomes negative or at the end of the quarantine period.

Induction for labour, cesarean section should be carried out as the routine pratice just as the postpartum routine follow-up.

There is no data that shows transmission to the breast milk. Temporary isolation for the neonate should be practiced in COVID-19 positive mother. If the mother decides to have the baby with her the mother and the baby can be partially isolated, using a curtain or a seperator. The mother should wash her hands with water and soap for 20 seconds prior to breast-feeding and should use a mask that covers her mouth and nose. Breast pump, spoon or bootle used during breast-feeding should be washed with soap and water.

RECOMMENDATIONS OF CENTER FOR DISEASE CONTROL (CDC)

https://www.cdc.gov/coronavirus/2019-ncov/hcp/pregnant-women-faq.html#pregnant [5]

The risks of the disease during pregnancy or the risk for poor obstetric outcome: Due to the immunologic and physiologic changes during pregnancy, pregnant women migh be more susceptible to viral respiratory tract infections. There is not sufficient information on poor obstetric outcomes such as pregnancy lost and miscarriage. High fever during the first trimester of pregnancy is known to increase the risk of birth defect.

Vertical transmission in COVID positive pegnant women: Although the literature data are limited, the virus was not detected in the amniotic fluid and vertical transmission has not been reported.

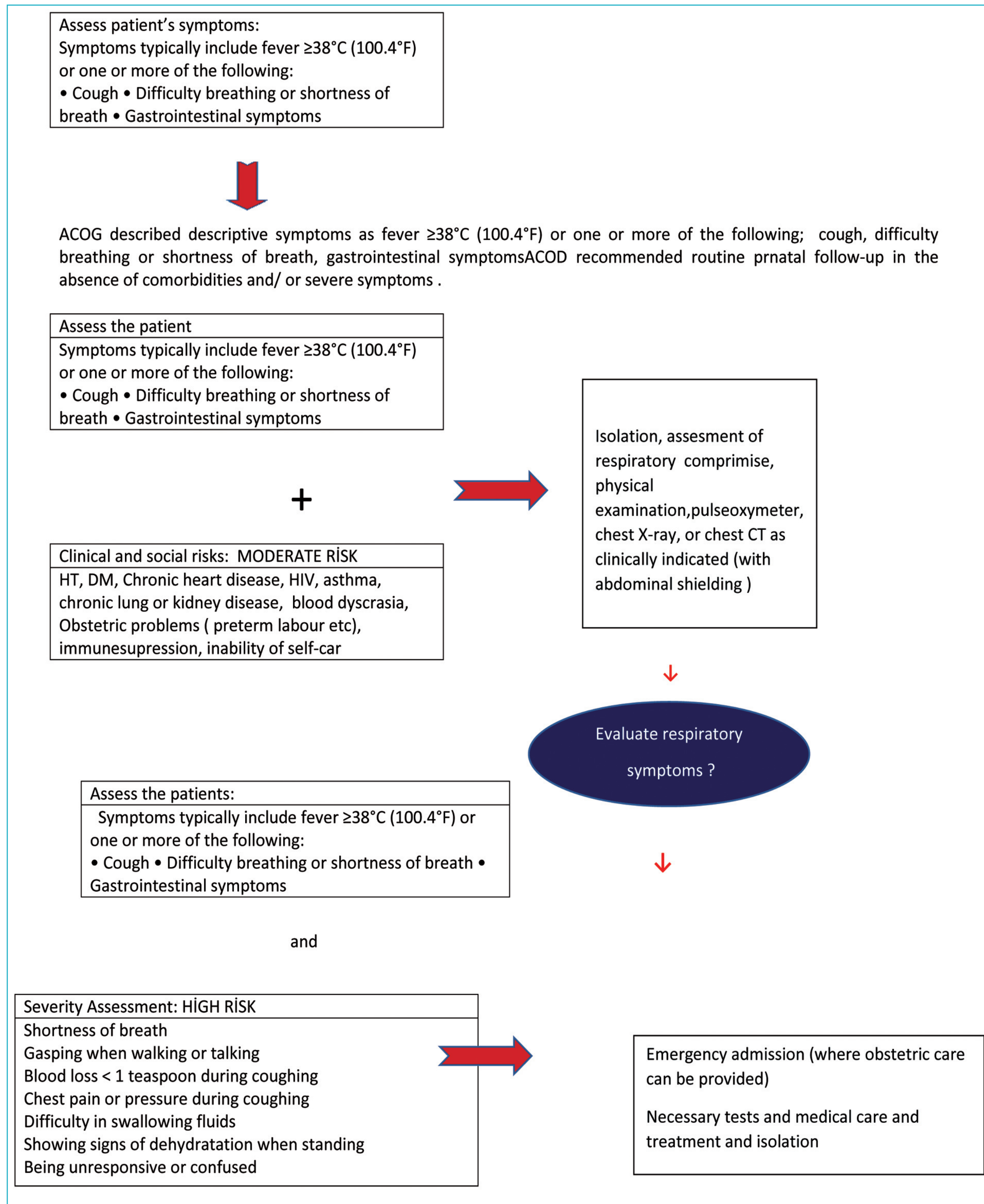

FIGURE 1: Summary of " Outpatient Assessment and Management for Pregnant Women With Suspected or Confirmed Novel Coronavirus (COVID-19) algorithm published by ACOG 3 . https://www.acog.org/-media/project/acog/acogorg/files/pdfs/clinical-guidance/practice-advisory/covid-19-algorithm.Apdf

The risk of newborns born to COVID-19 positive mothers: The limited data in literature shows risks such as pretern birth and/or smal for gestational infants. The long-term risks of preterm birth and low birth newborns and the long-term risks related to being born to a mother with COVID-19 infection is not yet known.

Breast-feeding: The virus is not detected in breast milk but antibodies were detected in one case.

RECOMMENDATIONS OF ROYAL COLLEGE OF OBSTETRICIANS AND GYNECOLOGISTS (RCOG)

https://www.rcog.org.uk/coronavirus-pregnancy [6]

If there are symptoms of Corona virus infection the patients should not attend to their routine clinic, they should get in touch with their routine clinic and should be directed to the appointed center. The numer of antenatal visits can be reduced after talking with the staff, the pregnant women are advised to come to the visits accompanied with minimum people and should not bring their children. The facilities should coordinate the antenatal visits bearing in mind the need for self-isolation. The appointment of the pregnant women who demonstrate COVID symptoms could be delayed for 7 days if they do not have a continious cough, the appointment can be delayed for 14 days if one of the household is under quarantine because of the symptoms.

ANTENATAL FOLLOW-UP IN COVID-19 SUSPICIOUS OR CONFIRMED CASES

In Early Stages of Labour

The women should be encouraged to call the unit that she is going to deliver. Women with mild symptoms of COVID-19 infection should send the early latent phase at home. Infected women who planned to have home delivery or delivery by a midwife should receive counselling about the increased potential risk of fetal demise in these patients. The women are advised to deliver at a unit where continuous monitoring is available.

Maternal and Fetal Assesment After the Mother is Placed in an isolation Room

The severity of COVID-19 symptoms should definetly be assesed by a multi-diciplinary team consisting of an infectious diease specialist and an internalist. Detailed investigation including body temperature, respiratory rate and oxygen saturation should be carried out. The onset of labour should be evaluated as the standart procedures.

Electrical fetal monitorisation is required. Two case studies from China that included 18 COVID infected pregnant women demonstrated fetal demise in 8 out of 19 babies (one twin) delivered. For this high risk, continous monitoring during labour is advised.

If the infected women demonstrate signs of sepsis, the treatment should be based on RCCOG guideline on sepsis with a special consideration on the possibility of COVID-19 infection as a possible cause for sepsis.

The women are advised to stay at home until an advanced stage of the delivery unless there is a worry about the health status of the women and the fetus when transportation to the hospital is guarenteed.

During Spontaneous or Induced Labour

On admission of a women with suspicious or confirmed COVID-19 infection to delivery suit, a multidisciplinary team composed of consultant obstetrician, consultant anaesthesiologist, consultant neonatologist midwife in charge, neonatal ward head nurse and infection control team whould be informed about the case.

Minimum number of health personnel should be allowed into the delivery room. And scenarios to provide this should be developed. There is evidence of the density of the household and its relation to the coinfection in the members of the family.

The partner of the women should be considered as infected even if he is asymptomatic, he must be asked to wear a mask and wash his hands frequently. If the partner is infected, he should be isolated and can not accompany his partner. The pregnant women should chose another accompanying person if required.

The inspection and assesment of the moher should involve hourly measurement of oxygen saturation besides standart monitorization.

After the consultation of the medical team, the mother should be informed about the symptoms that show the severity of the disease besides the current signs and symptoms.

Ideally, the patient should be placed in an isolation room for follow-up of the progression of the labour.

Oxygen supplementation must be given in order to keep the oxygen saturation >94%.

The presence of COVID-19 in vaginal secretions has not been demonstrated. There is no superiority of any mode of delivery. Considering the obstetric indications and women's choice, the mode of delivery should be counselled with the pregnant women. The mode of delivery should not be chosen based on the presence of COVID-19 infection unless emergency intervention is required in case of respiratory distress.

In suspicious or confirmed cases regarding the lack of personal protection for health service workers and the risk of infection agent in feces water birth is not recommended.

There is no evidence that shows contraindication for spinal or epidural anesthesia. As anesthesia will be required in emergency situation, epidual anesthesia should be performed at early stages of the labour. There is no evidence that Entonox (mixture of nitrogen and oxygen) has an aerosal spreading effect. Entonox can be used with a disposable microbiologic filter. If the symptoms of the women worsen the decision for an emergency section should be made based on the risk/benefits of proceeding with labour or performing emergency cesarean section.

The medical staff must definetly take time for applying personal protective equipment and explain the possible delay related to this. If the women is hypoxic or worn out elective enstrumental delivery can be considered individually in order to shorten the 2nd stage in symptomatic women. If there is no contraindicaion with the available current data late cord clamping is recommended. The cord can be cleaned as performed in normal cases.

ELECTIVE CESAREAN SECTION

In order to reduce the risk of infecting other patients and health workers delaying the cesarean section appointment should be considered after evaluating the individual risk factors. If delaying the cesarean section is not safe, obstetric management of the cesarean section should be carried out in compliance with routine procedures. In COVID-19 positive women with mild symptoms or suspicious cases, the emergency of planned induction should be considered when a decision is made. If planned induction can not be delayed, the patient must stay in the same isolation room during her hospital stay.

PLANNED LABOUR INDUCTION

After admission of the patient to the hospital, a multidisciplinary meeting with parcipitaion of consultant obstetrician, consultant anaesthesiologist, head midwife and cosultant internalist and infectious diesase specialist is held and the discussed points and decisions are shared with the pregnant women. The goals are determined.

The priority is stabilization of the women with standart supportive care treatment. Radiodiagnostic tests such as chest X-Ray and chest tomography are performed just as a non-pregnant woman if required without delay due to the concerns about the health of the fetus. Protective barriers are used in order to protect the baby. The delivery is conducted as routine if the mother's condition is stabilized.

There is no evidence about the deteriorating effect of conrticosteroid use for lung maturation of the fetus, therefore it can be used when indicated. In emergency situations the delivery should not be delayed for conrticosteroid administration.

Similar to other obstetric emergencies the mother's condition should be stabilized. The multi-disciplinary team should individually evaluate the condition of the mother with regard to the need for an emergency delivery in order to resuscitate the mother or to save the fetus or whether the conditions will improve after elective delivery. Mother's health should always be the priority. In absence of an obstetric contrindication mode of delivery omitting water birth should be individualized. Cesarean section should be based on maternal and fetal conditions as in practiced in routine practice.

Considering the fact that acute respiratory distress might develop in women with moderate or severe COVID-19 infection findings hourly fluid balance should be observed in order to prevent fluid overload.

The data on follow-up of babies born to COVID-19 positive mothers is limited. There is no evidence until 20th of March 2020 about vertical antenatal viral transmission. The articles form China advise isolation of the baby from the mother for 14 days. Routine seperation of the baby from the mother will have a negative impact on baby's nutrition and mother-infant bonding. We advise that the babies should be roomed-in with mothers unless intensive care is required for the newborn during the early postpartum period. The care of the baby should be individualized after evaluation of the risks/benefits with the team and the family involved. These recommendations might change in time as new data appear.

FEEDING THE INFANT

In 6 COVID-19 positive women reported from China the virus was not detected in the breast milk but this finding should be cautiously encountered due to the restricted number of cases. The major risk in breast-feeding is close contact of the baby with the infected mother. In the light of the current data, it is believed that the benefits of breast-feeding outweighs the risk of viral spread.The risks/ benefits of breast-feeding should be discussed with the mother including the risk of the close contact during breast-feeding. This recommendation might change in time with renewed data.

The precautions that a mother shoud take for the baby:

Washing hands before touching the baby, milk pump, bootles and other equipment required.

Avoiding coughing or sneezing while breast-feeding

Wearing a face mask during breast feding-if available

Cleaning the milk pump after each use

Considering to have another person feeding the newborn with breastmilk obtained using a milk pump.

As a result, different societies have similar recommendations for pregnant confirmed, suspicious or possible COVID-19 cases on continuing the routine and compulsory antenatal follow-up visits, counselling the health organisation before attending in order to confirm that they will be admitting COVID positive cases, deciding the mode of delivery based on the obstetric conditions unless an early termination in case of development of respiatory complications. Although all guidelines agree about the advantages of breast-feeding, they ssupport that the decision of breast-feeding should be finalized after sharing the risk of close contact experienced during breast-feeding with the mother as it will increase the risk of transmission especially if precautions are not taken. The mother should take strict precautions for prevention of viral transmission through droplets or contact if the baby is not isolated from the mother. These recommendations might evolve in time with new publications.

Source of Finance

During this study, no financial or spiritual support was received neither from any pharmaceutical company that has a direct connection with the research subject, nor from a company that provides or produces medical instruments and materials which may negatively affect the evaluation process of this study.

Conflict of Interest

No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.

Authorship Contributions

This study is entirely author's own work and no other author contribution.

REFERENCES

1. World Health Organization (WHO). Facts and figures from The World Health Report; 2005. [Link]
2. Yu N, Li W, Kang Q, Xiong Z, Wang S, Lin X, et al. Clinical features and obstetric and neonatal outcomes of pregnant patients with COVID-19 in Wuhan, China: a retrospective, single-centre, descriptive study. Lancet Infect Dis. 2020 Mar 24. Doi: 10.1016/S1473-3099(20)30176-6. Online ahead of print. [Crossref] [PubMed]
3. The American College of Obstetricians and Gynecologists (ACOG). Novel coronavirus 2019 (COVID-19). [Link]
4. [Link]
5. Centers for Disease Control an Prevention (CDC). Coronavirus disease 2019 (COVID-19). Pregnancy and breastfeeding. [Link]
6. Royal College of Obstetricians & Gynaecologists. Coronavirus (COVID-19) infection and pregnancy. London: RCPCH; 2020. p.60. [Link]