D:\Biomedica – Vol. 36, COVID19-S2, 2020\34-Bio-3.Doc P. 93 – 95

COMMENTARY

Giving Birth at Times of COVID-19

Sheza Hassan[1], Mir Ibrahim Sajid[2], Sajid Abaidullah[3], Zahida Parveen[4]

ABSTRACT

Ever since Coronavirus disease 2019 (COVID-19) has been declared a pandemic by World Health Organization (WHO) it has gradually become top cause of morbidity. Severe Acute Respiratory Syndrome Corona Virus 2 (SARS-CoV-2) possesses the tendency to cause severe symptoms in patients with a weakened immune system. In the setting where a mother develops mild COVID-19 infection yet remains stable, responds to medical treatment and there is no fetal compromise; the pregnancy may be continued to term with close surveillance. What is important in the current scenario is that the patients of COVID-19 along with any other comorbidities or medical conditions are at more risk of having fatal disease then the ones with COVID-19 alone. The pregnancy is one physiological condition in which a patient can face drastic pathological complications with COVID-19 if not given the due care.

KEYWORDS: COVID-19, Pregnancy, Childbirth, Labour.

How to Cite This:

Hassan S, Sajid MI, Abaidullah S, Parveen Z. Giving birth at times of COVID-19. Biomedica. 2020; 36(COVID19-S2): 93-5.

Coronavirus disease 2019 (COVID-19) is a World Health Organization (WHO) declared pandemic caused by Severe Acute Respiratory Syndrome Corona Virus 2 (SARS-CoV-2). This virus originated in Wuhan, China in December 2019 as viral pneumonia of an unknown etiology. The virus possesses the tendency to cause severe symptoms in patients with a weakened immune system, especially in elderly i-e >65 years of age and immunocompromised individuals. Since pregnancy is a physiological immunosuppressive state, pregnant females are more predisposed to develop a severe COVID-19 infection than the non-pregnant cohort.[1]

1. Sheza Hassan, Medical College, Aga Khan University, Karachi–Pakistan.
2. Mir Ibrahim Sajid, Medical College, Aga Khan University, Karachi–Pakistan.
3 Sajid Abaidullah, King Edward Medical University, Lahore–Pakistan.
4 Zahida Parveen, Ayub Medical College, Abbottabad–Pakistan.

Correspondence to:
Mir Ibrahim Sajid
Aga Khan Medical College, Stadium Road, Karachi-Pakistan.
Email: ibisajid@gmail.com

A recent publication shows that there is no risk of vertical transmission in women who developed COVID-19 pneumonia in their last trimester.[2] On the contrary a research by Dong et al.[3] discusses a possible vertical transmission in a pregnant female with 34 weeks of gestation, who presented with respiratory difficulties, had patchy-ground-glass opacities on chest Computed Tomography (CT) scan and had a positive reverse transcription polymerase chain reaction (RT-PCR) on nasopharyngeal swabs. Her baby was delivered by caesarian section in negative pressure isolation room and was tested positive for SARS-CoV-2 without any symptoms.[3]

Close contact with infected healthcare practitioners, non-sterile surgical instruments, air contamination in delivery room and labor operation theatres are the main predisposing risk factors. In pregnancy however, the physiologically induced weaker immunity makes the women more prone to nosocomial COVID-19 infection. On the other hand, positive mothers can pass on the infection to their newborn after delivery. Mode of childbirth is determined based on obstetric indications as deemed suitable by the obstetrical

healthcare. However, an increased prevalence of preterm deliveries has been associated with COVID-19 positive mothers.[4]

In the setting where a mother develops mild COVID-19 infection yet remains stable, responds to medical treatment and there is no fetal compromise; the pregnancy may be continued to term with close surveillance. Regular monitoring of maternal vital signs (temperature, heart rate, blood pressure, respiratory rate and oxygen saturation by pulse-oximetry) should be done. Dynamic assessment of electrolytes, fluid balance, arterial blood gases and acid-base status is required in case hospitalization is warranted.[5]

Ultrasound examination of the fetus and fetal heart rate monitoring is recommended to assess fetal wellbeing. However, in critical cases, termination of pregnancy or premature delivery is indicated to avoid maternal morbidity and mortality.[6]

In pregnant females, having symptoms relevant to COVID-19 infection, laboratory tests should include a complete blood count (CBC), C-Reactive Protein (CRP), 2019-nCoV detection by RT-PCR, and an imaging investigations (chest radiography or lung ultrasound).[7] A CT scan of chest may be more useful, since it confirms 60-93% of positive cases even before the RT-PCR shows a positive COVID-19 infection. It is imperative to note that the CT scan should be performed with abdominal shielding to protect the fetus, since it predisposes the infant to early childhood leukemia.[8]

There has been no evidence regarding transplacental or transvaginal spread of infection, however, two cases have been reported showing positive RT-PCR in newborn due to close contact with COVID-19 infected patient. Both of these infants were infected postnatally, one after 36 hours and other one after 17 days of delivery.[7]

In a case study, the authors tested breast milk and maternal vaginal secretion on the post-partum fifth day for corona virus and found them to be negative.[6]

The treatment is essentially supportive and symptomatic as proposed by the guidelines set by WHO and the Chinese working committee on Perinatal and Neonatal management for the prevention and viral control.[9,10] The pregnant females diagnosed with infection should be placed in a negative pressure room. These patients are divided into three categories:[10]

1) Mild-symptomatic with stable vitals.
2) Severe [respiratory rate ≥ 30/min, resting oxygen saturation (SaO2) ≤ 93%, arterial blood oxygen partial pressure (PaO2)/oxygen concentration (FiO2) ≤ 300 mmHg].
3) Critical (shock with organ failure, respiratory failure requiring mechanical ventilation or refractory hypoxemia requiring extra-corporal membrane oxygenation).

When a spontaneous vaginal delivery **(**SVD) is planned for COVID-19 diagnosed pregnant female, it should take place in a negative pressure room with unnecessary instruments removed from the delivery field and with a minimal number of staff to mitigate the possible risk of cross contamination between patient and the healthcare workers.[11] The instruments should be sterilized using appropriate sterilization methods as proposed by the Centers for Disease Control and Prevention (CDC).[12]

On the other side if caesarean section of a COVID-19 patient is indicated, there is a need of negative pressure operating room, skillful medical team, and enhanced personal protective equipment including N95 masks, surgical caps, double gowns, double gloves, shoe covers, and powered air-purifying respirators should be used at the hospital for safe delivery, to avoid dissemination of infection. After delivery the neonates should be admitted to the quarantine ward and prophylaxis prevention should be considered.[13]

What is important in the current scenario is that the patients of COVID-19 along with any other comorbidities or medical conditions are at more risk of having fatal disease then the ones with COVID-19 alone. The pregnancy is one physiological condition in which a patient can face drastic pathological complications with COVID-19 if not given the due care.

CONFLICT OF INTEREST

None to declare.

FINANCIAL DISCLOSURE

None to disclose.

REFERENCES

1. WHO. Virtual press conference on COVID-19. Available online at: https://www.who.int/docs/default-source/coronaviruse/transcripts/who-audio-emergencies-coronavirus-press-conference-full-and-final-11mar2020.pdf?sfvrsn=cb432bb3_2. [Last accessed on March 19, 2020]
2. Chen H, Guo J, Wang C, Luo F, Yu X, Zhang W, et al. Clinical characteristics and intrauterine vertical transmission potential of COVID-19 infection in nine pregnant women: a retrospective review of medical records. Lancet. 2020; 395 (10226): 809-15.
3. Dong L, Tian J, He S, Zhu C, Wang J, Liu C, et al. Possible vertical transmission of SARS-CoV-2 from an infected mother to her newborn. JAMA. 2020; e204621. [Epub ahead of print].
4. Liu H, Wang L-L, Zhao S-J, Kwak-Kim J, Mor G, Liao A-H. Why are pregnant women susceptible to viral infection: an immunological viewpoint? Am J Reprod Immunol. 2020; 139 (2020): 103122. [Epub ahead of print].
5. Deprest J, Van Ranst M, Lannoo L, Bredaki E, Ryan G, David A, et al. SARS-CoV2 (COVID-19) infection: is fetal surgery in times of national disasters reasonable? Prenat Diagn. 2020: 10.1002/pd.5702. [Epub ahead of print].
6. Qiao J. What are the risks of COVID-19 infection in pregnant women? Lancet. 2020; 395(10226): 760-2.
7. Wang L, Shi Y, Xiao T, Fu J, Feng X, Mu D, et al. Chinese expert consensus on the perinatal and neonatal management for the prevention and control of the 2019 novel coronavirus infection (First edition). Ann Transl Med. 2020; 8(3): 47.
8. Bernheim A, Mei X, Huang M, Yang Y, Fayad ZA, Zhang N, et al. Chest CT findings in coronavirus disease-19 (COVID-19): relationship to duration of infection. Radiology. 2020; 295(3): 200463.
9. World Health Organization. Clinical management of severe acute respiratory infection (SARI) when COVID-19 disease is suspected: interim guidance. 2020. Available online at: https://www.who.int/publications-detail/clinical-management-of-severe-acute-respiratory-infection-when-novel-coronavirus-(ncov)-infection-is-suspected. [Last accessed on April 25th, 2020]. [Epub ahead of print].
10. Maternal and Fetal Experts Committee, Chinese Physician Society of Obstetrics and Gynecology, Chinese Medical Doctor Association, Obstetric Subgroup, Society of Obstetrics and Gynecology, Chinese Medical Association, Society of Perinatal Medicine, Chinese Medical Association, Editorial Board of Chinese Journal of Perinatal Medicine. Proposed management of 2019-novel coronavirus infection during pregnancy and puerperium. Chin J Perinat Med. 2020; 23(4): 73-9.
11. Maternal and Fetal Experts Committee, Chinese Physician Society of Obstetrics and Gynecology, Chinese Medical Doctor Association, Obstetric Subgroup, Society of Obstetrics and Gynecology, Chinese Medical Association, Society of Perinatal Medicine, Chinese Medical Association, Editorial Board of Chinese Journal of Perinatal Medicine. Proposed management of 2019-novel coronavirus infection during pregnancy and puerperium. Chin J Perinat Med. 2020; 23(6): 73-9.
12. Qi H, Luo X, Zheng Y, Zhang H, Li J, Zou L, et al. Safe delivery for pregnancies affected by COVID-19. BJOG. 2020; 10.1111/1471-0528.16231. CDC. Disinfection and sterilization. Available online at: https://www.cdc.gov/infectioncontrol/guidelines/disinfection/. [Last accessed on May 8, 2019]. [Epub ahead of print].
13. Lee DH, Lee J, Kim E, Woo K, Park HY, An J. Emergency cesarean section on severe acute respiratory syndrome coronavirus 2 (SARS- CoV-2) confirmed patient. Korean J Anesthesiol. 2020; 10.4097/kja.20116. [Epub ahead of print].

Author's Contribution

SH: Conception and design of published data.

MIS: Acquisition of published data.

SA: Final approval of the version to be published.

ZP: Critical revision for intellectual content, final approval of the manuscript.

Professor Sajid Abaidullah (MBBS, FCPS) is the Head of North Medicine at Mayo Hospital Lahore and senior faculty member at King Edward Medical University. He is a lifetime fellow and Vice President of Pakistan Society of Internal Medicine's Punjab Chapter. His basic research interests include Cardio-metabolic Health, Gastrointestinal and Hepatobiliary diseases. He has authored over 80 peer-reviewed publications in indexed journal and supervised numerous research projects in a career spanning over three decades. He is also an examiner, paper-setter and supervisor of College of Physicians and Surgeons Pakistan.