

A Critical Analysis of Key Strategies for Management of Pregnancy during COVID19 Infection in Developing Nations

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Abstract

Background: At the present time, limited data are available on pregnant women with COVID-19 on which to base recommendations for pregnancy-specific care; however, early reports and lessons from SARS, MERS and other respiratory infections suggest that pregnant women could have a severe clinical course after COVID 2019 infection.

Objective: To critically analyse the Strategies for Pregnancy care in patients with COVID 2019 Infections with Pregnancy.

Materials and Methods: As per latest Literature available from last 20 years, search of various studies in any form; using four key search words: "Pregnancy Care" "COVID 2019 Infection, Developing Nations, Low Resource Setting" was done from all important websites such as Google, PubMed, EMBASE, MEDLINE, Global Health, Biomed Central, Web of Science, Cochrane Library, world library World Cat, from 1st May 2000 to 31st May 2020. Any kind of Pregnancy care Guidelines specially developed during SARS, MERS and ZIKA Virus Infection were reviewed and research guidelines from WHO and any other region wise Pregnancy care guidelines for COVID 2019 for Developing Nations were also Included in this Study by Mini-Review Approach.

Results: Review of 22 latest articles reveals that there is a need to take all preventive measures in pregnant women, to control and prevent further spread of COVID-19. The focus must be on symptom based treatment, Promoting effective Information, Education, communication (IEC) between healthcare professionals (HCPs) to detect suspected COVID-19 in pregnancy.

Conclusion: Providing priority based health care for pregnant women is crucial for preventing further risk of the infection in neonates.

Keywords: *Pregnancy Care; COVID 2019 Infection; Developing Nations; Hyperglycaemia in Pregnancy (HIP)*

Abbreviations

SARS: Severe Acute Respiratory Syndrome; MERS: Middle East Respiratory Syndrome; COVID: Corona Virus Disease; IEC: Information, Education, Communication; HCPs: Healthcare Professionals; WHO: World Health Organization; CDC: Centre for Disease Control; NIH: National Institute for Health; ACOG: American College of Obstetrician and Gynaecologist

Introduction

Emerging infections have been shown to have an important impact on pregnant women and their fetuses [1,2] with the increased risk of complications in pregnant women with the 2009 pandemic H1N1 influenza virus 2 and the severe foetal effects of Zika virus as recent examples [3,4]. The latest study in 2020 have revealed that Pregnant women have comparable clinical courses and outcomes with reproductive-aged non-pregnant women when infected with SARS-CoV-2 and there is no evidence which supports vertical transmission of COVID-19 in the late stage of pregnancy, including vaginal delivery [5-10].

But Latest Pandemic of COVID 2019 also suggests that Surveillance systems for cases of COVID-19 need to include information on pregnancy status as well as maternal and foetal outcomes. It is important to be vigilant about the spread of the disease and be able to provide rapid implementation of outbreak control and management measures once the virus reaches a community. Standard interventions to manage any severe respiratory infection is the foundation of care for any pregnant woman with COVID-19 and should be implemented aggressively in a team-based care model [10-15].

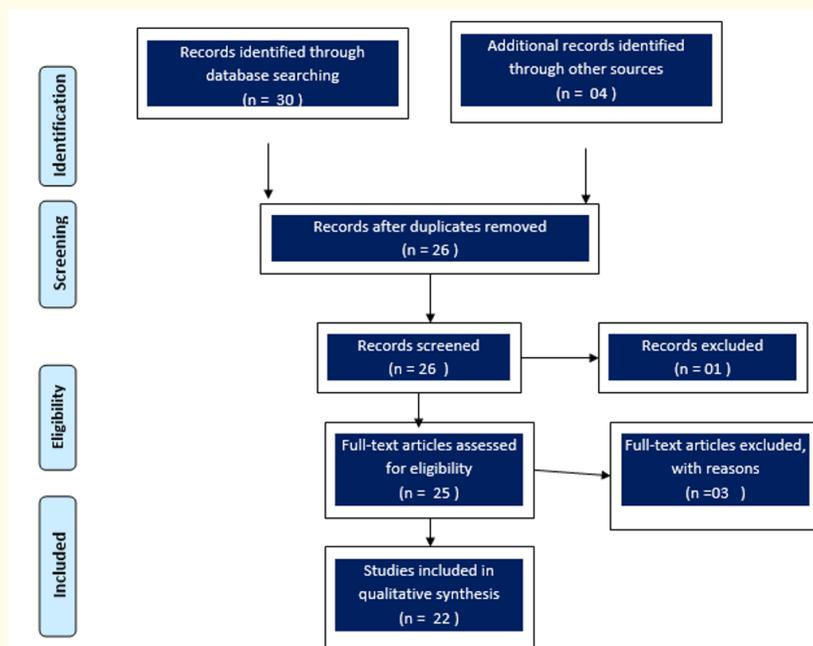
Covid19 (SARS-CoV-2) infection in pregnancy is not linked with more risk of spontaneous abortion and preterm birth. Till now chances of vertical transmission of covid19 during last trimester is not substantiated [1]. During pregnancy immune system is not strong enough to response to fetus and thus becomes more susceptible to wide type of infections bacterial, viral SARS, MERS etc. and others and moreover during last trimester pregnant women lung space also have less space because of growing womb pressure on diaphragm which may lead to shortness of breath, therefore all these conditions may lead to developing more severe covid19 if she comes in contact with COVID19 viruses [2]. The infection with high fever during pregnancy are associated with more birth defects as NTD (neural tube defects) [3]. Lack of much data on covid19 infection in pregnancy and risk of severe complications on reproductive health outcomes is not known and reports on vertical transmission is also limited [4]. That’s why this minireview has been attempted by authors in this article. The study was therefore carried out with key objective of assessing the role of strategies in Management for Pregnancy care in patients with COVID 2019 Infections.

Materials and Methods

This study was based on Secondary Research strategy based on PRISMA (2009) Guidelines as shown in flow diagram, and proper Inclusion Criteria. Any type of article, as per latest Literature available from last 20 years, search of various studies in any form; using four key search words: “Pregnancy Care” “COVID 2019 Infection, Developing Nations, Low Resource Setting” was done from all important websites such as Google, PubMed, EMBASE, MEDLINE, Global Health, BiomedCentral, Web of Science, Cochrane Library, world library WorldCat, from 1st May 2000 to 31st May 2020.

Inclusion criteria

Any kind of Pregnancy care Guidelines including Management of Hyperglycaemia in Pregnancy specially developed during SARS, MERS and ZIKA Virus Infection were reviewed and research guidelines from WHO and any other region wise Pregnancy care guidelines for COVID 2019 for Developing Nations were also Included in this study by Mini-Review Approach.



Flow Diagram: Articles Review Strategy [PRISMA (2009) approach].

Results

Our results reveal 4 key analysis on pregnancy care for COVID 2019 as detailed below.

Analysis of diagnostic criteria of gestational diabetes in pregnant women with COVID 2019 infection

As per WHO Data for GDM During Pregnancy there is a criteria for Asian and Caucasian but the question is which is more useful? With the WHO 2013 criteria, a fasting VPG of > 5.1 mmol/L or 92 mg/dl (HAPO odds ratio 1.75) would diagnose more than half of GDM cases in Caucasian But A low diagnostic rate of FPG has been reported in Asian Indians with a fasting plasma glucose 5.1 mmol/l (92 mg/dl) diagnosing only 24% of GDM. In relation to FPG, there is a considerable variability between countries noted in the HAPO study with FPG diagnosing only 22% of GDM in women in Bangkok and Hong Kong compared with up to 71% in some US centers [11].

A two-hour value after 75 g of OGTT in fasting or non-fasting state, with a value > 140 mg/dl is diagnostic of GDM for Asians [12]. This one step procedure solves a variety of challenges associated with repeated visits to the health facility, problems associated with fasting Blood Sugar in Pregnancy, This Guidelines has been accepted by Ministry of health family Welfare, GOI, 2014 [13]. With progressively higher fasting glucose diagnostic thresholds, the yield would fall. While unlikely to be acceptable in routine clinical practice, such a strategy would greatly reduce the potential risk of exposure of pregnant women to COVID-19.

As per the WHO Research is currently underway to understand the impacts of COVID 19 infection in pregnant women but, due to changes in their bodies and immune systems, pregnant women can be affected by some respiratory infections or Flu as COVID19, therefore important that HCPs take measures to protect against COVID-19 and intimate symptoms like fever, cough or difficulty breathing) to their healthcare provider.

Analysis of WHO guidelines for COVID 2019 infection in pregnancy

WHO has Issued general Question and Answer FAQ related to Possible COVID19 infection in pregnancy and during childbirth. Following is the advisory based on COVID19 in pregnant women and child [5].

Are pregnant women at higher risk from COVID-19?

I am pregnant women. How can I protect myself from COVID-19? (Figure 1).



Figure 1: WHO strategic advice on preventing COVID 2019 infection in pregnancy. Source: Adapted from WHO (2020) [21].

Pregnant women should take the few precautions to avoid COVID-19 infection. They can help themselves by:

- Washing your hands frequently with an alcohol-based hand rub or soap and water.
- Keeping space between yourselves and others and avoiding crowded spaces.
- Avoiding touching your eyes, nose and mouth.
- Practicing respiratory hygiene. This means covering your mouth and nose with your bent elbow or tissue when you cough or sneeze. Then dispose of the used tissue immediately.

If they have fever, cough or difficulty breathing, seek medical care early. Call before going to a health facility and follow the directions of your local health authority. Pregnant women and women who have recently delivered - including those affected by COVID-19 - should attend their routine care appointments.

What care should be available during pregnancy and childbirth?

All pregnant women, including those with confirmed or suspected COVID-19 infections, have the right to high quality care before, during and after childbirth. This includes antenatal, newborn, postnatal, intrapartum and mental health care (Figure 2).



Figure 2: WHO strategic advice on quality care in pregnancy. Source: Adapted from WHO (2020) [21].

A safe and positive childbirth experience includes:

- Being treated with respect and dignity;
- Having a companion of choice present during delivery;
- Clear communication by maternity staff;
- Appropriate pain relief strategies;
- Mobility in labour where possible, and birth position of choice.

If COVID-19 is suspected or confirmed, health workers should take all appropriate precautions to reduce risks of infection to themselves and others, including hand hygiene, and appropriate use of protective clothing like gloves, gown and medical masks.

Can I touch and hold my newborn baby if I have COVID-19?

Yes. Close contact and early, exclusive breastfeeding helps a baby to thrive. You should be supported to

- Breastfeed safely, with good respiratory hygiene;
- Hold your newborn skin-to-skin, and
- Share a room with your baby. You should wash your hands before and after touching your baby, and keep all surfaces clean.

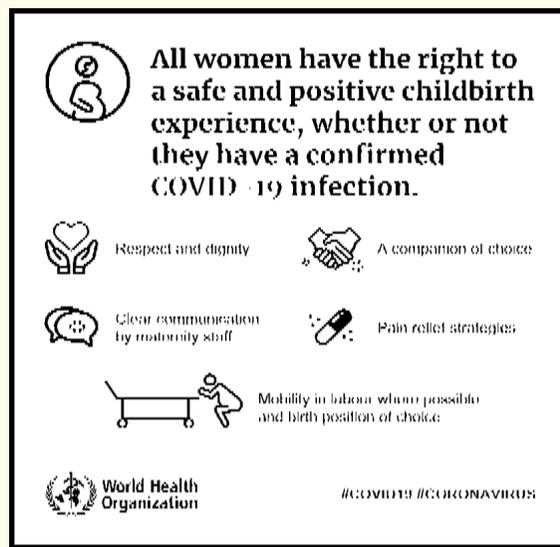


Figure 3: WHO strategic advice on care in pregnancy with COVID 2019 infection. Source: Adapted from WHO (2020) [21].



Figure 4: WHO strategic advice on breast feeding with COVID 2019 infection. Source: Adapted from WHO (2020) [21].

Should pregnant women be tested for COVID-19?

Testing protocols and eligibility vary depending on National and Local Guidelines.

However, WHO recommendations are that pregnant women with symptoms of COVID-19 should be prioritized for testing. If they have COVID-19, they may need specialized care.

Can COVID-19 be passed from a woman to her unborn or newborn baby?

We still do not know if a pregnant woman with COVID-19 can pass the virus to her foetus or baby during pregnancy or delivery. To date, the active virus has not been found in samples of amniotic fluid or breast milk [8].

Do pregnant women with suspected or confirmed COVID-19 need to give birth by caesarean section?

No. WHO advice is that caesarean sections should only be performed when medically justified. The mode of birth should be individualized and based on a woman’s preferences alongside obstetric indications.

Management of COVID-19 in pregnancy

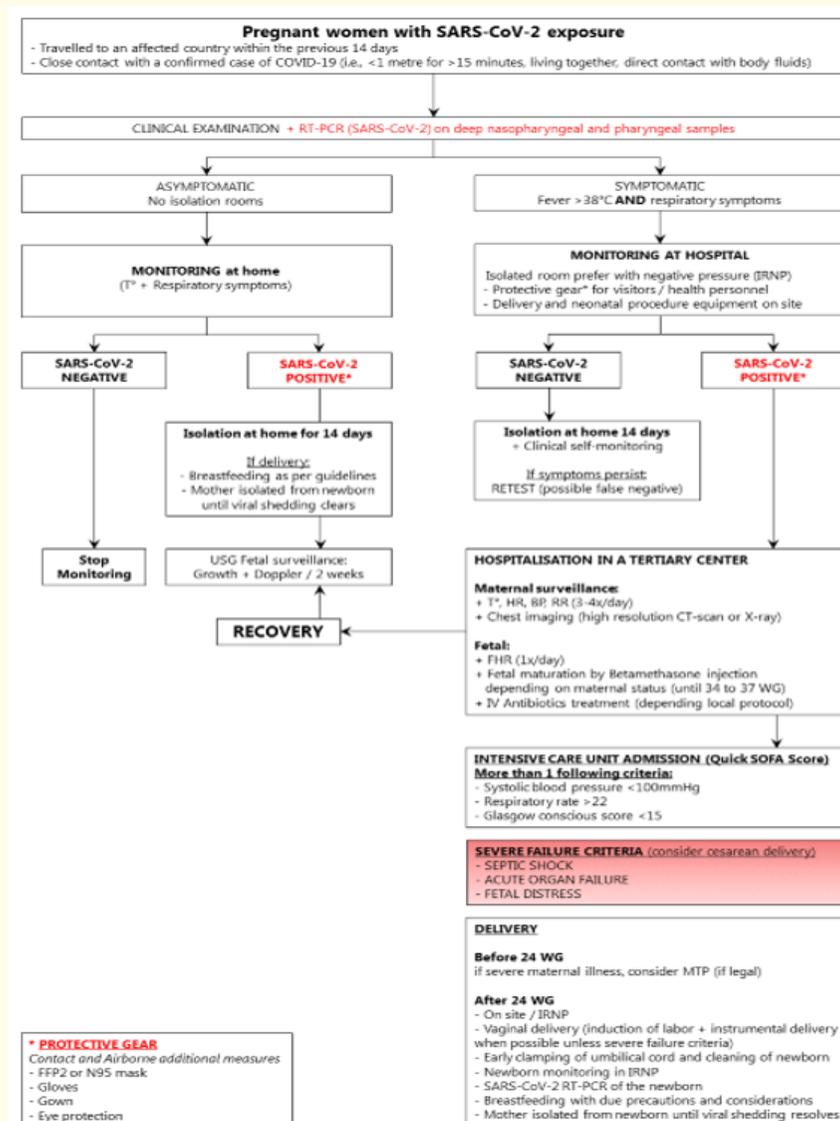


Figure 5: Flow chart for management in pregnant women [9].

Discussion

The analysis of our results from various results of studies [1-20] reveal that Preventive care includes washing hands frequently, social distancing in public places, avoid outdoor activities should be followed by pregnant women. HCPs should also record their temperature and check with doctor in case of fever cough or shortness of breath [6]. In case of history of travel or COVID-19 symptoms should be isolated for at least 14 days. The National Health Commission of China recommends that neonates from mothers who are confirmed or suspected should be kept under supervision and not breastfed [7]. The Comparison of findings of our present review study from many studies such as that of Yan J, Guo., *et al.* [5], Rasmussen SA., *et al.* [6], Dong L., *et al.* [8], Poon LC., *et al.* [12] included in this review is in unison with other review studies such as that of Zaigham M., *et al.* [14], Favre G., *et al.* [19], ACOG [22], Omer S., *et al.* [23].

Few studies reveal no evidence is currently available to confirm the transfer of 2019-nCoV to breast milk [8]. Pregnant women should be watched for vital (Temperature, pulse, saturation oxygen and respiration rate), maternal health provider should be informed and regular check is important. Extracorporeal membrane oxygenation (ECMO) and oxygen inhalation at a flow rate of 40 L/min) may be used if hypoxia occurs [9]. A strict surveillance of mother and infant with COVID19 improves the understanding of disease and which may put at risk to the health care provider providing care to new-born baby [10]. It is not known whether COVID-19 can be transmitted through breastmilk, or if any potential viral components, if transmitted, are infectious. Although a recent case report detected SARS-CoV-2 RNA in the breastmilk (Lancet Groß 2020), the majority of the data has not demonstrated the presence of SARS-CoV-2 virus in breastmilk. Therefore, suspected or confirmed maternal COVID-19 is not considered a contraindication to infant feeding with breastmilk at this time [22].

However, mothers with suspected or confirmed COVID-19 can transmit the virus through respiratory droplets while in close contact with the infant, including while breastfeeding. Therefore, obstetrician-gynecologists and other maternal care practitioners should counsel women with suspected or confirmed COVID-19 who intend to infant feed with breastmilk on how to minimize the risk of transmission [22].

The Various studies such as that by ACOG organizations recommend allowing the mother and infant to remain together with enhanced precautions in place when the mother has suspected or confirmed COVID-19 emphasizing the well-documented benefits of keeping the mother with her newborn, breastfeeding, and skin-to-skin contact [22].

Conclusion

Providing priority based health care for pregnant women is crucial for preventing further risk of the infection in neonates.

Recommendation

Public health officials should implement best possible COVID 2019 Protocol such as that of WHO and that of Lates research strategies in literature for the pregnant women and this may put less risk to the health care provider providing care to mother and new-born baby in COVID 2019 Pandemic era.

Limitation of Study

Ours is a Mini-review study, which needs further evaluation in Big Systematic Review and Meta analysis Studies in future, so results must be interpreted with caution.

Take Home Messages

1. Keep up to date with the latest COVID 19 guidelines from the WHO/CDC/NIH.
2. To take all preventive measures in pregnant women, to control and prevent further spread of COVID-19.
3. Focus on symptom based treatment, as there is no WHO recommended treatment for COVID-19. Promote effective Information, Education, communication between healthcare professionals to detect suspected COVID-19 in pregnancy.
4. Provide priority based health care for pregnant women and preventing further risk of the infection in neonates.

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