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Review Article

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Perinatal practical guidelines on COVID-19: what one should know to reduce the risk

Prasuna Jelly, Meenakshi Sharma*, Gunjot

College of Nursing, AIIMS, Rishikesh, Uttarakhand, India

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*Correspondence: Meenakshi Sharma,

Meenakshi Sharma, E-mail: sharmaminakshi34@gmail.com

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ABSTRACT

Risk of COVID-19 in pregnant woman is the same as that in the general population but as pregnancy is a state of immunosuppression along with other physiological respiratory and immune changes. A pregnant woman might show more severe symptoms of COVID-19 infection. Health care employees should be permitted to meet pregnant women through managed home visits and with help of teleconsultations. Mothers should follow meticulous hand hygiene, respiratory etiquettes and social distancing because they have key role in restricting spread of infection. Protein rich diet, vitamin C, vitamin D, zinc, calcium, iron and folic acid are very necessary components to be consumed by antenatal woman. It may help to protect mother and baby by having certain vaccines during pregnancy such as the influenza, tetanus and Tdap vaccines. Pregnant women with major risk of exposure/COVID-19 symptoms and no emergency obstetric issues should be stated for testing outside the hospital. Pregnant women without urgent obstetric issues awaiting results should stay at home to self-isolate. Those with emergency obstetric issues should be managed in labour room devoted to COVID-19 patients. Mode of delivery depends upon obstetrical indication and health condition of mother. Regular assessment of respiratory condition should be done during labour along with continuous electronic foetal monitoring. The WHO encourage mothers with COVID-19 to hold and breastfeed their babies because close connection is essential for new-born but to reduce risk of transmission temporary separation of new born from mother with confirmed or suspected COVID-19 is considered strongly.

Keywords: Perinatal guidelines, Practical guidelines, COVID 19, Perinatal period, Risk reduction

INTRODUCTION

As per the study of centres for disease control and prevention, pregnant women suffering from COVID-19 are at a higher risk of hospitalization, five times more compared to the non-pregnant COVID-19 patients. Many females who are pregnant experience only mild to moderate symptoms of cold or flu. Some common symptoms of COVID-19 are Cough, Throat pain, fever, shortness of breath, headache, anosmia, nausea, headache, diarrhoea and loss of taste. By 22 November 2020, 5,78,82,183 confirmed cases of COVID-19 were reported to WHO including 13,77,395 deaths worldwide and 90,95,806 confirmed cases of COVID-19 with 1,33,227 deaths reported in India. ²

Novel coronavirus (SARS-COV-2) is a new coronavirus strain causes COVID-19 which was first known in Wuhan city of China. In December 2019, its characteristic specifically those of transmission from individual to individual were documented. The coronavirus infection has a high transmission rate through droplets and fomites. The World health organization (WHO) on 11 March, 2020 declared it as a pandemic. On 30 January 2019, India stated first diagnosed case.³

Pregnant women do not appear more likely than general population to come into contact with the COVID-19 infection. Risk of infection in a pregnant woman is the same as that in the general population but as pregnancy is a state of immunosuppression along with other

physiological respiratory and immune changes, pregnant woman might show more severe symptoms of COVID-19 infection. Pregnant women have other co-morbid condition like diabetes, hypertension, obesity, respiratory infection need to be extra vigilant. The impact of corona virus raises the risk of perinatal anxiety and depression even of domestic abuse. It is important to support for pregnant women and families. There is no evidence until now that a pregnant woman with COVID-19 can transfer virus to her foetus during gestation or delivery. The active virus has not been found in amniotic fluid or breastmilk till date.³

Therefore, a need to perform an eclectic review was felt to mention the guidelines and protocols for answering the question. This review presents evidence and evidence-based recommendations regarding precautions for COVID-19, screening protocols, antenatal check-up, quarantine criteria, breast feeding protocols, new-born care and management of COVID-19 pregnant mothers during antenatal, intranatal and postnatal period.

METHODS

Article extracted using different important keywords like COVID-19, SARS-COV-2, Perinatal protocol, prevention and nursing management of pregnant mothers during COVID-19, new-born care and breastfeeding. Authors searched this article from various international health organizations like WHO, UNICEF, CDC, ICMR, ACOG and FOGSI. This article is focused on aspect of preventing COVID-19 transmission during antenatal, intranatal, postnatal period and to new-born. It also focuses on nursing management of pregnant mothers and new born with COVID-19 infection. We reviewed all publications applicable to this study and also used a list of references from existing research that were searched for to find new important studies.

GUIDELINES

Antenatal care

The WHO suggests pregnant women to take entirely possible safety measures to decrease chances of exposure to SARS-CoV-2. Frequent hand washing often with a soap or alcoholic hand rub at least for 20 seconds, maintain social distancing, avoid crowded places, avoid to touch nose, eyes and mouth, Practice respiratory hygiene and wearing mask are important precautionary measures (Figure 1). Antenatal woman should use bent elbow or tissue to cover her mouth and nose when cough or sneeze. Then quickly dispose of the used tissue.²

Health care employees should be permitted to meet pregnant women through managed home visits and with help of mobile health approaches or teleconsultations. Antenatal woman should discuss about her delivery settings so that they can be admitted to hospital on time (Figure 2).⁴

Any pregnant woman who experience symptoms of COVID-19 must inform their healthcare providers immediately. There should be a single designated person along with woman during antenatal period, delivery and postnatal period for check-up in hospital area. Antenatal woman present with COVID-19 symptoms should be tested on priority basis and specialized care should be given. Specialized care includes to assess mother in isolation room, multidisciplinary team approach, assessment of respiratory rate, administration of medication, antenatal examination and information session for mother with COVID-19. Mode of delivery depends on obstetrical indications and mother's condition during labor.⁵

while there is no specific vaccine existing for COVID-19, it may help to protect mother and baby by having certain vaccine during pregnancy such as the influenza, tetanus and T-dap vaccines. To check for COVID-19, CDC suggests nasopharyngeal swab specimen collection. Reverse-transcription polymerase chain reaction (RT-PCR) test helps in detection of COVID-19 infection.²

The standards for home-based quarantine individuals

1) Live ideally in good hygienic and ventilated single-room preferably with an attached toilet 2) If another family member has to live in the similar room, a gap of at least one meter between the two should be followed 3) Social/religious events and large gatherings should not be attended under any condition 4) general safety steps to be taken in quarantine include hand washing, preventing exchange of utensils, wearing a surgical mask and replacing it each 6 to 8 hours with proper disposal in 1% hypochlorite solution 5) if COVID-19 symptoms arise during home quarantine, the pregnant woman should follow the instruction given to her and immediately call health facility near to her home 6) while handling soiled linen, disposable gloves should be used. Wash clothes separately.

The period of home quarantine is 14 days from coming in contact with confirmed case or earlier if the test was done on a suspected case and is negative.⁴

Advice regarding antenatal check up

Antenatal women at 12, 20, 28 and 36 weeks of gestation will be recommended to undergo antenatal check-up. For antenatal women who starts symptoms of COVID-19, appointments can be deferred until 7 days after onset of symptoms, except symptoms become Appointments will be adjourned for 14 days for antenatal women who are self-quarantined. There is need for important milestones visits such as 12- and 19-week scan. Any woman who has a postponed regular appointment for more than 3 weeks should be communicated by phone and home visit with PPE by ANM and ASHA worker. Advice women to work from home at least two weeks prior to date of delivery (preferable 37 weeks onwards).

Foetal kick count should be maintained and if any alteration, needs to be notified to obstetrician.³ Ultrasound scan after 14 days of COVID-19 infection is advisable as precaution in pregnant woman having

confirmed COVID-19. If there is emergency condition such as natural labour pain, watery discharge and less preceding foetal movement, mother should get admitted as soon as possible.

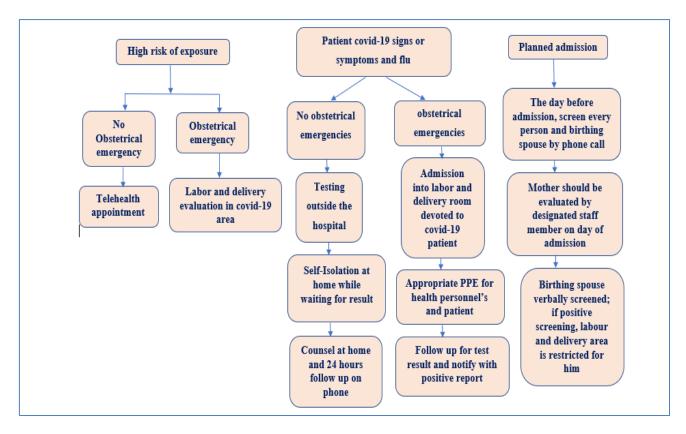


Figure 1: Appropriate screening, testing and preparation of pregnant women for COVID-19 before admission to hospital.

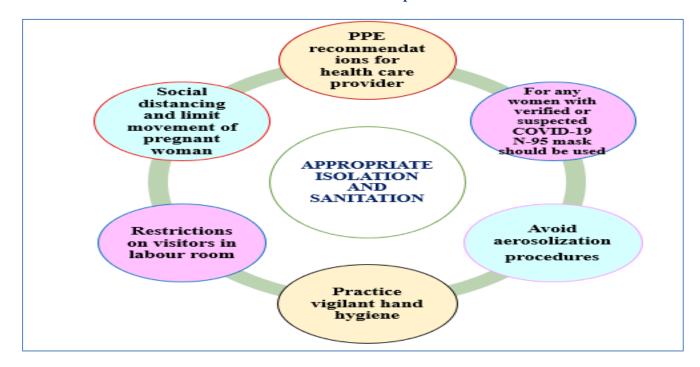


Figure 1: Elements of appropriate isolation and sanitation.

Supportive treatment for COVID-19 infection includes rest, nutritional care, gargles, ambulation, monitoring vital signs, fluid management, oxygen supplementation, as needed. Two methods have been attempted for treatment of COVID-19 viral infection. First method is use of mixture of hydroxychloroquine and azithromycin. Such medications are easily available in India and costeffective. Another method was use of antiviral medications, some of which are still not available in India. Medication prescription depends upon severity of disease condition

Adequate nutrition and hydration during COVID-19 pandemic are essential. Each day an antenatal woman should consume different fresh and natural foods to get vitamins, minerals, dietary fibre, carbohydrates, protein and antioxidants required by the body.² Antenatal woman should take zinc and vitamin C for improving immunity and cell growth of body. Turmeric, ginger, garlic and cinnamon have natural anti-inflammatory action. Antenatal woman should take moderate amount of fat and less amount of salt and sugar. Water is best choice, but an antenatal mother should also drink coconut water, lemon juice, sugarcane juice and natural fruit juice to get vitamins and minerals for building up immunity and health. Avoid sweetened and condensed fruit juices, fizzy and still drinks because they all contain sugar. To reduce the level of stress and anxiety, an antenatal woman should do yoga, meditation, exercise, enjoying hobbies, listening music and talking with family members and friends. Seek guidance and psychosocial help from professionally trained health care providers and also from peer social worker.2

ANTENATAL CARE

During COVID-19 pandemic, maternity care providers should provide respectful and client centred skilled care and support. For management of suspected or confirmed COVID-19 cases, separate labour room and operating theatres should be available. Delivery timing should not be changed on basis of COVID-19 contamination to mother.⁵ Extra attention should be given to reduce transfer of woman in hospital from one place to other. For COVID-19 positive patient, who does not need urgent treatment, it is important to note that seriousness of disease sometimes peaks in second week; thus, it is best to schedule delivery before that time.⁶

First stage

Regular assessment of respiratory condition with a watch for symptoms of difficulty or shortness of breath, excessive chest pain, decrease in oxygen saturation and pyrexia should be done during labor. If these features deteriorate, intensive care measures like ventilation will be required.⁵ For areas with current COVID-19 overload, starting labor induction at home to reduce length of hospital stay. It is advised that early management with oxytocin and amniotomy minimize risk of sluggish

process of labour. Nitrous oxide use poses risk of aerosolization and respiratory infection. Therefore, its use during COVID-19 pandemic is not recommended.⁶ During oxygen administration, nasal cannula or face mask used may lead to more possible contamination between patient and health care personnel. Adequate precautions should be used while oxygen administration or during dispose of articles.

Second stage

For reducing maternal fatigue, second stage of labor should be shortened. Bearing down effort is recommended for reducing the duration of second stage of labor. Mode of delivery depends upon obstetrical indication and health condition of mother. At present, with COVID-19 infection most women are being delivered by caesarean section, but there is no proven scientific rationale for same.⁴ Continuous electronic foetal monitoring during labour is mandatory to assess the foetal wellbeing. The presence of coronaviruses does not contraindicate epidural or spinal analgesia. For a symptomatic woman, who is becoming tired or hypoxic an individualised decision should be taken to minimise span of second stage of labour. CT chest is vital for the assessment of the patient with COVID-19. If WBC is raised consider it as bacterial infection. So, every fever is not due to COVID-19 during intrapartum period.³

Third stage

Adequate care should be given to minimize the risk of postpartum haemorrhage. In addition to usual oxytocin, prophylactic tranexamic acid and misoprostol (400 mcg buccally) should be considered. Placenta should be expelled timely during third stage of labour.⁶

POST NATAL CARE

Postnatal treatment of the COVID-19 contaminated mother should include constant medical check-up of respiratory condition and standard postnatal care practices. She should be advised to uphold appropriate hand washing and puerperium related hygiene habits. Mother should know how to treat engorged breasts if feeding is not started yet. She should also be aware of methods to improve breastfeeding after period of isolation. She should eat balanced and nourishing diet to develop immunity and recover from infection. Hospitals should highlight social distancing and require assessment if signs of acute respiratory disease occur after delivery.⁴

Discharge planning and preparation: on postnatal day 1 or even the similar day if possible, all vaginal deliveries have a goal of discharge and on postoperative day 2, all caesarean deliveries have a goal of discharge for minimising the hospital stay but after new-born healthy condition.⁶ In addition to normal postdelivery advices, discharge card should have advice on COVID-19 infection.² All postnatal check-ups without any

emergency should be arranged by telehealth. Pictures can be sent through telehealth.⁶

Breast feeding

The WHO encourage mothers with COVID-19 to hold and breastfeed their babies because close connection is essential for new-born. Mother should be encouraged to share a room with her baby. However, mother must follow strict safety procedures. Before and after touching baby, mother should clean her hands appropriately. Surfaces near mother and baby should also be cleaned properly.

Due to COVID-19, if mother is unwell to breastfeed baby, she should provide breast milk to baby safely in a way that is practicable, available, and appropriate. This may include expressed milk and donor human milk if available. Re-lactation is usually feasible and valuable effort even however return to complete breastfeeding is not possible.⁵ Data is available which suggest that breast milk is not transmitting COVID-19.

Infected mother with COVID-19 and choose to breastfeed: Advice mother to follow all precautions to prevent spread of infection, especially wear a face mask while breastfeeding.

Mothers infected with COVID-19, selects to express breast milk to feed her baby can use sterile breast pump. Washing hands and wearing face mask is necessary before breast milk expression along with cleaning and sterilizing all portions of breast pump that come into touch with breast milk. When appropriate, a fit caregiver should feed expressed breast milk to infant and stay at same home.²

NEW BORN CARE

SARS-CoV-2 neonate transmission is thought to occur predominantly through respiratory droplets during postnatal period when neonates are exposed to COVID-19 mother, healthcare staff, caregivers or visitors. To reduce risk of transmission temporary separation of new born from mother with confirmed or suspected COVID-19 is considered strongly by keeping neonate in separate place, keeping physical distance of more than 6 feet between neonate and mother. During contact with neonate, mother should cover her face with cloth mask and perform hand cleanliness. Throughout contact with new-born, facemask should remain on face. Cloth face mask should not be used for neonates or any children under age of 2 years. To discontinue temporary separation of mother from her baby, decision making depends upon findings of viral laboratory testing triggering COVID-19, seriousness of disease, signs and symptoms of disease and health condition of neonate. Separation precautions are not required for mothers whose test results are negative.²

When Care givers take care of neonate, they should also use all measures to prevent spread of infection includes wash hands meticulously before and after baby contact, practicing respiratory hygiene for example by avoiding coughing or sneezing on baby, cleaning and sterilizing any contaminated surface, and wash bottle in hot and soapy water, if baby is bottle fed with formula or expressed milk. Sterilise bottle cautiously before every use.⁴

According to BBC news, "among COVID-19 infected mothers, 115 babies were born at Lokmanya Tilak Municipal General Hospital Mumbai. Two pregnant mothers with COVID-19 infection died at hospital. Through Caesarean section more than half of babies delivered and rest were normal births. Postnatal mothers remain in special ward of COVID-19 for a week after their delivery and hydroxychloroquine were prescribed. After that they were quarantined in separate centre for 10 days. The babies were breastfed by mothers wearing facemask".

According to India today, "two pregnant women suffering from COVID-19 delivered normal babies by caesarean section in Nanavati hospital, Mumbai. Mother and child were not in direct contact. Babies were transferred to an intensive care unit for special isolation. Hospital kept the number of health personnel to minimum and also provide skill training for use of Personal protection equipment. Special COVID-19 corridors were built to provide secure mother and baby transportation". Thus, these protocols helped in recovery of pregnant women and new born babies.

CONCLUSION

Pregnant women are high risk group for getting this infection, COVID-19 infection can lead to life threatening situation for mother and new born also. Prevention and Suitable management of pregnant COVID-19 patients with adequate protection for healthcare workers should be our aim. Multi-disciplinary team approach should be adopted. Clinical recommendations should be derived from the current trends rather than from previous epidemics. Proper planning and execution can help abatement of the spread of COVID-19.

Recommendations

1) Researches should be done to enhance knowledge and information regarding prevention and management of COVID-19 during pregnancy 2) maximum effort should be taken to provide essential facilities to pregnant woman at home during COVID-19 pandemic. Routine advices to mother can be given by teleconsultation 3) try to minimize change in health team members assigned for COVID-19 patients4) simulation training for planned or emergency caesarean and normal vaginal delivery should be given priorly to health care personnel 5) where testing facility permits, extensive testing of all labour admission

should be carried out due to possibly high incidence of patients with asymptomatic COVID-19 6) mother should be guided and prepared for delivery in a hospital. She should have understanding to manage the situation when she needs to come to hospital. It will help to decrease stress and anxiety which will further lead to hypoxia 7) mother should follow meticulous hand hygiene, respiratory etiquettes and social distancing because they have key role in restricting spread of infection 8) health care personnel's must be trained enough to hand washing, donning and doffing of PPE kit, sanitation of gloved hands frequently and care of COVID-19 patients 9) antenatal and postnatal mothers should be educated regarding immunity building nutritious diet sources. Healthy lifestyle, yoga and exercise are also very important.

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