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COVID-19 in Pregnancy- Review of Guidelines in Indian Setting from the Point of View of Community Health

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ABSTRACT

COVID-19 disease's unparalleled speed of spread has left us all in a worldwide alarming situation. The causative agent of this disease is severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) as proposed by the International Committee on Taxonomy of Viruses. Pregnant women might show more severe symptoms of COVID-19 infection but the vertical transmission risk remains uncertain. Precautionary methods like frequent hand wash and social distancing should be done. Routine ANC visits for uninfected patients can be deferred and telephonic consultation with the specialist should be encouraged. For COVID-19 positive woman in labor, obstetric, anesthetic or neonatal interventions should be done as per standard practice. Epidural or spinal anesthesia isn't contraindicated. General anesthesia should be avoided as risk of transmission is high during intubation. For pregnant patients not in labor, supportive and symptomatic treatment should be given. Antiviral regimen or combination of hydroxychloroquine with azithromycin has shown positive results. Post-delivery, the newborn should be temporarily separated from COVID-19 positive mother and expressed breast milk can be given.

Keywords: COVID-19, Pregnancy, Guidelines, Community Health

INTRODUCTION

Corona virus disease19 (COVID-19) has become a global pandemic with 23,56,414 number of case worldwide while in India the total number of cases have been 17,625 as on 21st April, 2020. [1] Its unparalleled speed of spread has left us all in a worldwide alarming situation. The causative agent is Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). It's a single stranded RNA enveloped virus causing various degrees illness ranging from common cold to pneumonia and acute respiratory distress. [2]

The risk of infection in pregnant woman is the same as that in general population but as pregnancy is a state of immunosuppression and along with other physiological respiratory and immune changes, pregnant women might show more severe symptoms of COVID-19 infection. The vertical transmission risk remains uncertain.

PREVENTION AND PRECAUTION

Government of India (GOI) advises disinfection of surfaces should be done with 1% sodium hypochlorite solution or phenolic disinfectants to decrease the spread of fomites, work from home facility should be provided, a distance of one metre to be maintained with others, non-essential travel to be avoided, gatherings to celebrate 7th month milestone should be avoided and the number of visitors to see the mother and baby post-delivery should be kept to minimum. [3]

The routine antenatal visits for the uninfected patients can be postponed and can be telephonic or web consultation for

minor complaints and doubts. Important visits for the 12 and 19 week scans are needed. Women must monitor their daily fetal movement count. The next visit could be at 32 weeks pregnancy. Precautionary methods like maintaining hand hygiene with alcohol based hand rub or frequent hand wash with soap and water should be done for atleast 20 seconds, touching of face, nose, eyes and mouth should be avoided and mouth should be covered while coughing or sneezing.

Health care workers should follow proper precautions so as to prevent getting infected and spreading the infection to other patients. The three prongs of infection prevention in medical staff include maintaining distance with patients and other workers, using personal protective equipment (PPE) properly and chemoprophylaxis with hydroxychloroquine (HCQ). [4] The recommended regimen as per ICMR is to take the tablet of 400 mg HCQ with meal twice a day on day 1 and then once weekly for 7 weeks. Contraindications include known sensitivity to drug, G6PD deficiency or retinopathy. [5] Abortion and MTP services should not be denied in general as denial will lead to increase in unsafe practices. Also as MTP is safer in early weeks of pregnancy, deferring it can lead to complications further. [4]

DIAGNOSIS

Incubation period of SARS-CoV-2 is 2-14 days. Clinical manifestation includes dry cough, fever, shortness of breath, malaise, and myalgia. Few may present with nasal congestion, runny nose, sore throat, haemoptysis, or diarrhoea. Medical history should be properly elicited including any other immune-compromised condition like diabetes, heart disease, kidney disease or HIV positive status. [6]

WBCs count can be normal or decreased, mild thrombocytopenia, increased liver enzymes and creatine phosphokinase can be found. The most useful investigation for diagnosis of viral pneumonia is CT scan of the chest without contrast with abdominal shield and should be performed in suspected cases as the risk of radiation exposure to the foetus is very less. [7] For diagnosis of COVID-19, sensitivity of chest CT was greater than that of RT-PCR (98% vs 71%) in a recent study. [8]

Viral RNA detection using RT-PCR is the standard for the diagnosis. Swab from saliva, nasopharynx, oropharynx, sputum, endotracheal aspirate, bronchoalveolar lavage, urine and stool sample are taken. [6]

As per ICMR, criteria for doing laboratory test are the same for everyone which includes: [9]

1. Pregnant woman having acute respiratory illness with one of the following:

Abroad travel history in the last 14 days (6 March 2020 onwards). These individuals and their household contacts should home quarantine for 14 days.

Close contact of a laboratory proven positive patient or Healthcare worker

Hospitalized with features of severe acute respiratory illness.

2. Pregnant women residing in hotspot or containment area presenting in labour or likely to deliver in next 5 days should be tested even if asymptomatic (Strategy for COVID19 testing for pregnant women in India (Version 1, dated 20/04/2020))

Asymptomatic pregnant woman should be tested between 5 and 14 days of coming into direct contact of COVID-19 positive individual. Repeated testing might be required to confirm the diagnosis. Two consecutive negative samples should be taken 24 hours apart rules out COVID-19. Serology as a diagnostic procedure should be used only if RT-PCR is unavailable. Samples should also be tested for other viruses, bacterial pneumonia, chlamydia and mycoplasma pneumoniae. Blood cultures should be taken to rule out secondary infection. [7]

MANAGEMENT

Until test results for COVID19 are available, all patient should be treated as confirmed COVID19. Obstetric

management should not be delayed in order to test for COVID-19. Separate maternity care set up and staff should be allocated for delivery of highly suspected to be positive and COVID-19 positive patients.

Infection control in-charge of the facility should be immediately notified by health care workers if any pregnant patient with confirmed COVID-19 status arrives and a registry should be maintained so that maternal and neonatal records could be used for future analysis. Alternate plans should be made to cater to the possibility of decreased workforce, shortage of PPE and limited isolation rooms. Minimum staffing to be kept during intrapartum period and emergency obstetric, anaesthetic and neonatal care to be provided only when indicated. Only single, asymptomatic birth partner should be allowed to stay and visitors if coming should wear proper PPE. The woman should be provided with a surgical face mask and attended by staff wearing appropriate PPE. [6]

All pregnant women should be triaged at entry and then allotted into one of the three zones depending on the presentation. Three demarcated zones clean, potentially contaminated and contaminated with exclusive passageways should be made to keep the exposure minimal with each other. Each zone should have its own provision to deal with outpatient, inpatient and intensive care management. Negative pressure system in contaminated zone limits the spread of infection. [4] Multi-disciplinary approach should be taken. The quick SOFA (qSOFA) score can be used for screening in triage. It includes 1 point for each of following 3 criteria. [4]

qSOFA SCORE				Score ≥ 2 is suggestive of sepsis and needs intensive care
Number	Criteria		Point	
1	Respiratory rate	≥ 22 breaths/min	1	
2	Mental status	Altered	1	
3	Systolic BP	≤ 100 mm Hg	1	

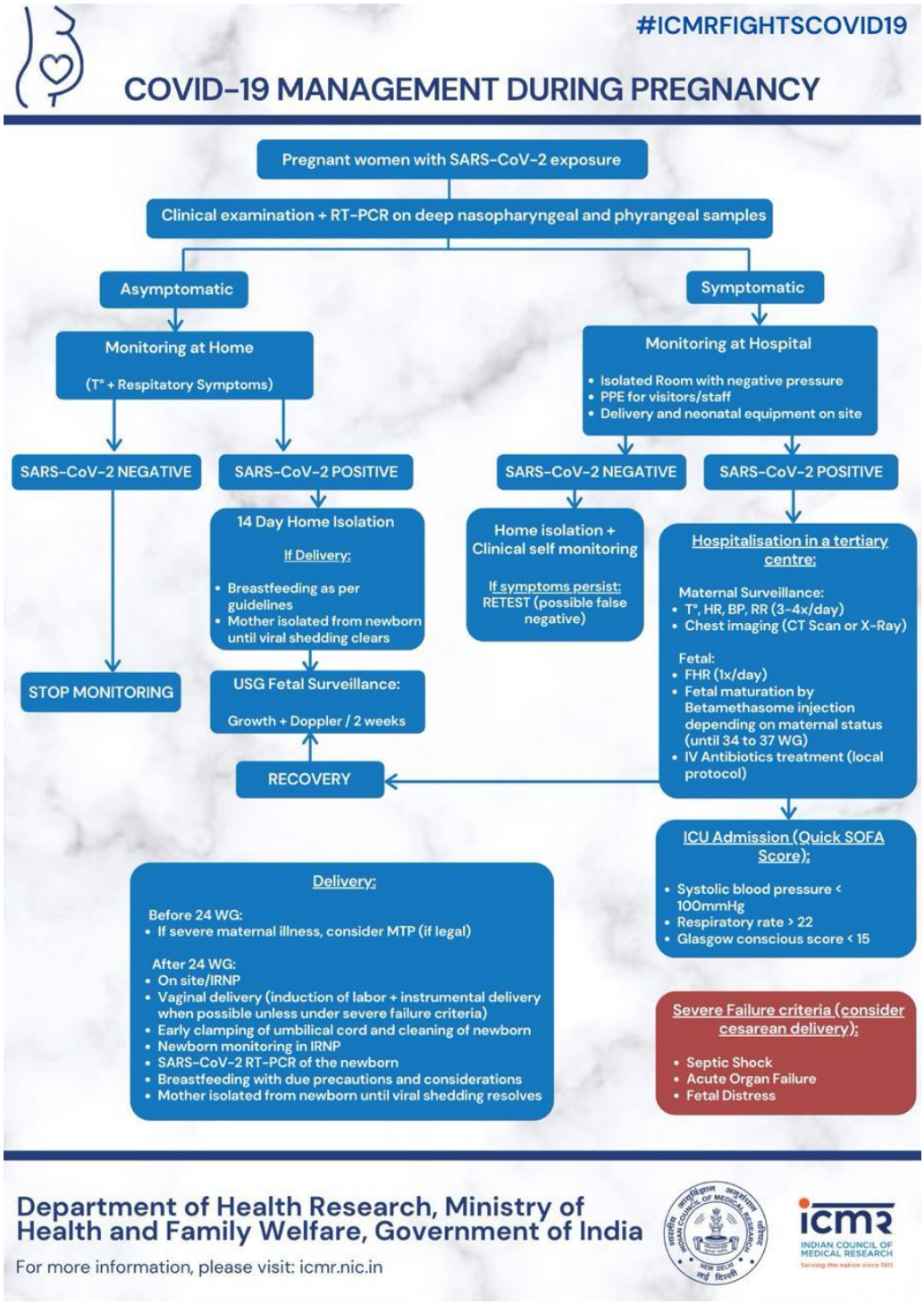
For pregnant women not in labour-

1. Supportive therapy for COVID-19 includes rest, oxygen supplementation, fluid management and nutritional care. Symptomatic relief can be given by use of NSAID. Paracetamol is preferred.
2. HCQ in a dose of 600 mg (200 mg TDS) and Azithromycin (500 mg OD) for 10 days has been shown to give cure on day 6 of treatment in 100% of treated patients [10]
3. Antiviral therapy - The first antiviral combination to be used for COVID-19 infection was lopinavir-ritonavir (400/100 mg) twice daily for 14 days and was deemed for cases having chronic disease and immunocompromised cases. But there was no difference in duration of clinical improvement or mortality at 28 days in a randomized trial of 199 patients with severe COVID-19 given lopinavir-ritonavir versus those who received standard care alone. In India, based on the experience of swine flu, few have prescribed a regimen of Oseltamivir 75 mg twice a day for five days with hydroxychloroquine but data on this regimen is limited at present. [4]
4. Antenatal Steroids for fetal lung maturity between 24 to 34 weeks of gestation. Use of steroids needs to be individualised as glucocorticoids have shown to increase the risk for mortality and delay viral clearance in influenza.
5. Antibiotics which are safe in pregnancy to be administered in case of evidence of secondary bacterial infection.

Intensive care:

- Hourly observations of pulse, blood pressure, respiratory rate, oxygen flow to be titrated to keep SpO2>94%
- Cautious IV fluid management. Boluses in volumes of 250-500 mls should be given and assessments of fluid overload to be done.
- Frequency of foetal heart rate monitoring should be individualised.

- Early mechanical ventilation and lateral decubitus position. [6]



For pregnant women in labour-

- Tocolysis is contraindicated if a woman presents in preterm labour as done in any systemic disease.
- Beta agonists should be avoided if there is pulmonary involvement.
- The presence of COVID-19 isn't an indication for termination of pregnancy as there is no evidence of vertical transmission with the exception of need of immediate delivery in critically ill patient to relieve the metabolic and pulmonary load.

- Timing and mode of delivery should be decided as per obstetric indication. Indications for intervention should follow standard obstetric practice.
- In labour, strict vigil to be maintained for difficulty or shortness of breath, increased respiratory rate and pulse rate or decrease in oxygen saturation. Any deterioration will require intensive care.
- Intravenous fluids should be restricted in labour.
- Continuous electronic fetal monitoring should be done.
- The second stage of labour should be cut short to prevent maternal exhaustion and to reduce maternal efforts if there is respiratory involvement.
- There is controversy about the timing of cord clamping. The ACOG recommends immediate cord clamping, whereas the RCOG recommends delayed cord clamping. [4]
- Neonatal resuscitation table should be atleast two meters away from the delivery table.
- Epidural or spinal anaesthesia is not contraindicated. It minimises the need for general anaesthesia if urgent delivery is needed. [6]

Postnatal care

>90% cases of coronavirus positive patients having pneumonia were found to have increased risk of preterm birth, preeclampsia, perinatal death resulting in NICU admission. [11]

Transmission after birth is a major concern as a result of contact with maternal infectious respiratory secretions. Temporary separation of the newborn with the COVID-19 positive mother should be done. If colocation or rooming in of the new-born with ill mother in the same hospital room occurs measures like putting curtain in between mother and newborn or keeping the newborn more than 6 feet away from the mother should be taken. In absence of other healthy adult to care for the new-born, COVID-19 positive mother should put on a facemask which should remain intact and do hand hygiene before each feed and other close contact with her new-born.

During temporary separation, mothers who wish to breastfeed should be encouraged to express their breast milk using breast pump and should practice hand hygiene. All parts that come into contact with breast milk should be thoroughly washed and the entire pump should be appropriately disinfected. [6]

CONCLUSION

Suitable management and support to 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. Pregnancy is a high risk group for contracting this infection and suitable precautions need to be taken to prevent the spread to newborn.

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