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PREGNANCY CARE AMID COVID-19 PANDEMIC

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ABSTRACT The dreaded COVID-19 pandemic declared on 11-03-2020 by WHO haunts mankind as well as pregnant women, fetus in utero and health care providers. It is caused by novel corona virus SARS-CoV-2 with a high rate of transmission through droplet infection and person to person contact, first reported in city of Wuhan, China in November 2019. Till date data available suggests that pregnant women without any risk factors are not more susceptible to COVID-19 infection versus general population. And with the outburst of the new variant the B.1.1.529, designated as Omicron which is a variant of serious concern. The variant Omicron was first reported to WHO from South Africa on 24 November 2021 and is suspicious of being worse. Pregnant women may be at increased risk of severe illness from COVID-19 in contrast to non-pregnant population. Pregnant mother has every right to receive quality antenatal, intranatal and postnatal care during COVID-19 pandemic. Strict adherence to COVID-19 safety protocol should be followed while examining patients in out-patient department and in patient department, labour room, delivery, cesarean section and other operative procedures. Universal precautions of COVID-19 to be taken by all.

KEYWORDS : COVID-19, Omicron, SARS-CoV-2, Pregnancy, Universal precautions

The dreaded COVID-19 pandemic declared on 11-03-2020 by WHO haunts mankind as well as pregnant women, fetus in utero and health care providers. It is caused by novel corona virus SARS-CoV-2 with a high rate of transmission through droplet infection and person to person contact, first reported in city of Wuhan, China in November 2019. Severe Acute Respiratory Syndrome (SARS COV), Middle East Respiratory Syndrome (MERS-COV) and common cold (H COV229E, HKO1, NL63, DC43) being other coronavirus infection. [1] Globally 27.1Cr cases have occurred with death toll of 53.2L . While, India has total 3.47Cr cases with 4.76L deaths till 15th December 2021 .

On 26 November 2021, WHO designated the variant B.1.1.529 a variant of concern, as Omicron on the basis of advice from WHO's Technical Advisory Group on Virus Evolution. The variant Omicron was first reported to WHO from South Africa on 24 November 2021. In recent weeks, infections have increased steeply in South Africa, coinciding with the detection of Omicron. The first known confirmed Omicron infection was from a specimen collected on 9 November 2021. The number of cases of this variant appears to be increasing in almost all provinces in South Africa. The variant Omicron was also detected in Botswana in samples collected on 11 November 2021. As of 27 November 2021, travel-related cases have also been detected in Belgium, Hong Kong, Israel and some European countries.[13]

Pregnant mother has every right to receive quality antenatal, intranatal and postnatal care during COVID-19 pandemic. Strict adherence to COVID 19 safety protocol should be followed while examining patients in out-patient department and in patient department, labour room, delivery, cesarean section and other operative procedures. Universal precautions of COVID 19 to be taken by all.

Till date data available suggests that pregnant women without any risk factors are not more susceptible to COVID-19 infection versus general population.However, pregnancy with high risk factors like Heart disease, diabetes, hypertension, asthma, liver disease and immune-compromised conditions like HIV, SLE demands extra vigilance and high alert. Pregnant women may be at increased risk of severe illness from COVID-19 in contrast to non-pregnant population. Disease course has not been found to be worsened by pregnancy.[2]

Risk of spread via respiratory droplets calls for stringent infection prevention practices. On account of lockdown situation and isolation, perinatal anxiety, stress, depression/ domestic violence may increase and pregnant women may require additional mental health support in addition to antenatal supervision.[3]

COVID-19 infection in pregnancy is just tip of iceberg of infection as compared to general population. E.Mullins et al [4], Feb 2020 in a rapid review of coronavirus in pregnancy and delivery reported thirty two pregnant women with COVID-19 infection. Of these, seven (22%) cases were asymptomatic while only two (6%) cases were critically ill requiring ICU admission.

Delivery of resident doctor's wife with COVID-19 infection at AIIMS, New Delhi and two cases in Maharashtra in April 2020 paved the way to safe motherhood with healthy newborn.[3] Although, there was no evidence of vertical transmission but recently a case of vertical transmission is reported in New York, where neonates nasopharyngeal swab was positive for SARS-CoV-2 real time polymerase chain reaction.[4]

COVID-19 infection in pregnancy appears to be less lethal as compared to SARS and MARS. The mean incubation period (from exposure to the appearance of clinical features) is five to seven days. Most people who are infected will show features latest by eleven days of exposure.[5] Majority of pregnant women with COVID-19 infection may be asymptomatic or may have mild symptoms like running nose, sore throat, cough and fever above 37.8 degree celsius. Only a few will have shortness of breath and features of severe acute respiratory illness. Fatigue, malaise, nausea, vomiting and diarrhoea may also be additional presenting symptoms.

All women despite the COVID-19 pandemic have a fundamental right to have safe and positive child birth experience with respect and dignity. Preparedness of health care professional to provide high quality antenatal, intranatal and postnatal as well as newborn care during pandemic COVID-19 remains need of the hour. Psychological concern of pregnant women regarding mental health and anxiety about baby to be born needs to be taken care of. Principals of management need to be stressed to prevent subsequent maternal complications in COVID-19 infected pregnant women, infection to neonate, spread of infection to other pregnant women and health care providers.[2]

The RCOG strongly advises that antenatal and postnatal care should be regarded as essential, and that “pregnant women will continue to need at least as much support, advice, care and guidance in relation to pregnancy, childbirth and early parenthood as before.”[5]

ANTENATAL CARE in normal pregnant women during COVID-19 pandemic should focus on:

- Minimizing antenatal visits to four at 12, 20, 28 and 36 weeks.
- For minor ailments pregnant women may contact healthcare professional via telehealth.
- Additional health care visits may be planned at the discretion of the health care provider, if there are any high risk factors or specific

symptoms related to pregnancy requiring immediate care.
- Use of mask, hand hygiene and social distancing should be followed in all pregnant women as well as health care providers.
- Iron and calcium supplementation along with high protein diet, Vitamin C and micronutrient supplementation are to be advised.
- All pregnant women visiting for antenatal checkup should be examined on priority and segregated from the routine patients waiting for their appointments.
- Pregnant women must get vaccinated against influenza (flu) and whooping cough (T-dap) vaccine as both have respiratory symptoms similar to COVID-19.
- Every patient coming to emergency labour room should be in triage/ screening examination room with adequate screening partitions and protective measures by doctor, asking high risk factors for COVID-19. Only screen negative pregnant patients with no high risk factor to be allowed in labour room. Rest must be shifted to suspect area with immediate medical specialist opinion. All pregnant patients with fever >38 degree Celsius, cough, breathlessness to be shifted to suspect area.
- Pregnant women residing in clusters or in large migration gathering from hotspot district presenting in labour or likely to deliver in next 5 days should be tested for COVID-19 even if asymptomatic.
- Pregnant women with suspected, probable or confirmed COVID - 19 infection who may need to spend time in isolation should have access to respectful skilled care including obstetric, fetal medicine and neonatal care as well as mental health and psychosocial support with readiness to care for maternal and neonatal complications.[5]
- Home quarantine for mild COVID-19 infection in pregnancy is recommended for two weeks, deferring antenatal visits, delivery or cesarean section for one week, if possible.

RCOG ADVISORY FOR ANTENATAL VISISTS include advice for disinfection of surfaces to reduce fomite related spread, work from home, keeping a distance of at least one meter in various necessary interactions and activities. Avoid non-essential travel, gatherings and functions. Minimize visitors from coming to meet the mother and newborn after delivery.[5]

Intrapartum Care: all obstetrics units should be provided with sufficient personal protection equipment (PPE) with basic training to each health care provider to include correct infection control practices. They should have appropriate isolation area for both suspected and confirmed cases of COVID-19.[2]

Principles of labour and delivery management remain the same except that facility for isolation should be there for safety of pregnant women and health care providers. Ensure safe institutional delivery with assessment of severity of COVID-19 symptoms, which should follow a multidisciplinary team approach including obstetrician, anesthetist, neonatologist and infectious diseases or medical specialist. Institute infection prevention and controlled measures to be followed with immediate transfer to isolation room and donning appropriate PPE by health care provider and treat as confirmed COVID-19 until test results are available.[6] For women with suspected or confirmed COVID-19 in third trimester, it is reasonable to attempt to postpone delivery till they recover, provided no other medical indications arise. Individualize the clinical stability of the pregnant woman, period of gestation and fetal condition. At present, there is no evidence of transplacental vertical transmission.[2,7] Induction of labour and caesarean delivery should continue to be based on obstetric fetal or maternal indications and not COVID-19 status alone. Mode of birth should not be influenced by the presence of COVID-19, unless the woman's respiratory condition demands urgent delivery. Separate delivery rooms and operation theaters are required for management of suspected or confirmed COVID-19 pregnant women. Both should have neonatal resuscitation corners located at least two meters away from the delivery table.[7] In addition to routine informed consent, it would be prudent to include aspects related to COVID-19 infection for the time of the pandemic including probable chances of COVID-19 infection while in hospital and its consequences and the precautions to be taken to avoid the infection.

Intrapartum Monitoring:
continuous electronic fetal monitoring in labour with cardiotocography is recommended. Labour to be monitored by partograph. Besides universal precaution for COVID-19, strict monitoring of labour for maternal and fetal wellbeing is essential. Periodic evaluation of vitals, respiratory rate, observation at cardiac monitor for minimal touch with patient is recommended. Oxygen saturation should be >94% at room air. Indications for intervention should follow standard obstetric protocols except in case of acute respiratory distress and prolonged labour.[7]

Delayed cord clamping to be practiced as it is highly unlikely to increase the risk of transmitting pathogens from the mother to the fetus even in the case of maternal infection.[8]

It is estimated that about 15% of COVID-19 infected individuals will need care in hospital and 5% will need intensive care. Respiratory rate >30 breaths/min, oxygen saturation < 93% at rest, arterial partial pressure of oxygen (PaO2)/ oxygen concentration (FiO2) < 300 mm of hg, patients with >50% lesions progression within 24 to 48 hours in lung imaging are indications of ICU admission. QUICK SEQUENTIAL ORGAN FAILURE ASSESSMENT SCORE (qSOFA) score can be a useful adjunct to decision making for ICU management.[7]

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

Score ≥ 2 is suggestive of sepsis and need of intensive care.

The isolation areas, procedure and surgical areas and medical equipment should all be handled as potential sources of infection if a COVID-19 pregnant woman has been cared for in those areas. After a procedure, the biological fluids, blood, fecal matter, reusable medical equipment, linen, fabric and clothes should be treated with alcohol based agents (70% isopropyl alcohol) or freshly prepared 1% sodium hypochlorite solution before disposal.[9]

Neonatal Risks:
2019-nCOV is extremely contagious.[10] No data as yet suggests an increased risk of early pregnancy loss, teratogenicity and vertical transmission (from mother to baby antenatally or intrapartum) or during breast feeding.[7,9,11]

The risks and benefits of temporary separation of mother from her baby should be discussed with the mother by the health care team. A separate isolation room should be available for the infant while they remain a patient under investigation. If separate room is not the option in accordance with the mother's wishes or is unavoidable due to facility limitations permit. Rooming in of new born with ill mother with use of physical barriers(e.g., a curtain between the mother and the newborn) and keep newborn ≥ 6 feet away from the ill mother. If no other healthy adult is present for care giving, the mother should put on a face mask and practice hand hygiene before each breast feed or other close contact with her newborn. There is no data suggesting transmission of COVID-19 infection in breastmilk .[7,11]

Neonates born to mothers with COVID-19 infection within 14 days of delivery or upto 28 days after birth or symptomatic neonates exposed to close contacts with COVID-19 infection are to be tested for COVID-19. Sample should be collected as soon as possible. If mother is COVID-19 positive and baby's initial sample is negative, another sample should be repeated after 48hours.[7]

Postpartum Care:
ensure availability of iron folic acid and calcium tablets during postnatal care period with hydration and good sleep. Promote breast feeding with early initiation of breast feeding. She should be encouraged to maintain the good practices of hygiene related to puerperium and hand hygiene.[7] Consider temporary separation of mother and baby (isolation or using physical barriers depending on mother's preference/availability of healthy caregiver). Postpartum women are at higher risk of anxiety and depression.[2]

Discharge:
healthy COVID-19 negative mothers are to be discharged 24 hours after normal vaginal delivery and on postoperative day 4 of cesarean section. Stable neonates exposed to COVID-19 and being roomed in with their mothers may be discharged together at time of mother's discharge. Inform all patients, how in case of emergency they can communicate with their obstetric/ pediatric team in case of minor

ailments and to return to facility in case of fever, respiratory symptoms or any danger signs. Advice all patients postpartum contraception within the limitations of decreased postpartum in person visits.[2,6,7]

Care Of Pregnant Healthcare Providers:

healthcare systems everywhere in the world are under pressure. The pressure is not only of the numbers and heavy workload but also of dealing with an unknown pathogen. All medical/paramedical staff should use universal precautions for COVID-19 during antenatal or postnatal examination, delivery and caesarean section along with social distancing and hand hygiene mandatory. On exposure to COVID-19 patient, entire medical and paramedical team should undergo quarantine.[7] All pregnant health care providers can continue to work only if they wish to but with great caution and universal precautions to limit exposure to patients with suspected or confirmed COVID-19, as they would with other infectious cases. They must rest in last trimester and stay at home with keeping at least one meter distance from another person. They should not hold events where people have to gather and not to go to crowded places.[2,7]

The American College of Obstetricians and Gynecologists (ACOG) recommends that all eligible persons greater than age 12 years, **including pregnant and lactating individuals**, receive a COVID-19 vaccine or vaccine series.[14] FIGO, considers that there are no risks – actual or theoretical – that would outweigh the potential benefits of vaccination for pregnant women and they support offering COVID-19 vaccination to pregnant and breastfeeding women. CDC and WHO also outline that pregnant and breastfeeding females are eligible for and can receive COVID 19 vaccination. MOHFW, GOI also recommends COVID 19 vaccination for all lactating women. The first study conducted on vaccination in pregnant and lactating women was published last month from USA. The study showed that COVID vaccination generates a robust immune response in pregnant and lactating women which is equivalent to the general population. Additionally, protective antibodies were also isolated in umbilical cord blood and breast milk, implying protection to the fetus and newborn. MOHFW, GOI has recommended COVID 19 vaccination for all lactating women.

Overview of FDA Emergency Use Authorization and Approval of COVID-19 Vaccines in the United States [14]

Vaccine Product	EUA Status	Licensure Status	No. Doses	Interval Between Doses	Third Dose*	Booster Dose**
Pfizer-BioNTech	EUA for use in individuals aged 5–15 years	Licensed for use in individuals aged 16 years and older	2	3 weeks (21 days)	Included in EUA for moderately to severely immunocompromised individuals	Available to everyone aged 18 years and older
Moderna	EUA for use in individuals aged 18 years and older	N/A	2	4 weeks (28 days)	Included in EUA for moderately to severely immunocompromised individuals	Available to everyone aged 18 years and older; administered as a half-dose (.25 mL)
J&J/Janssen	EUA for use in individuals aged 18 years and older	N/A	1	N/A	N/A	Included in EUA for all individuals who initially received J&J/Janssen

CONCLUSION:

various drug modalities like hydroxychloroquine, anti-viral therapy like lopinavir-ritonavir, remdesivir, oseltamivir and antibiotics like doxycycline and azithromycin have been tried for prevention of COVID 19 infection while vaccination efficacy and safety during pregnancy it is yet awaited. Till then we should learn to live amid COVID-19 infection with universal prophylaxis for all and health professionals to provide quality health care. All health facilities should have a preparedness to handle suspect or confirmed women of COVID-19. All women despite pandemic have a right to have a safe and positive childbirth experience. Provide prioritized care for pregnant women, thereby preventing further promulgation of the infection in neonates. Breast feeding should be encouraged in eligible neonates.

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