

COVID-19 Adverse Effects among Egyptain Pregnant Females and Neonates

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ABSTRACT

Pregnant women with asymptomatic COVID-19, on the other hand, did not have a higher risk of preterm birth. Preterm pregnancies were iatrogenic in (78%) of women with symptomatic COVID-19 as premature birth is linked to perinatal mortality, as well as long-term morbidity, are all factors to consider and it is the leading cause of newborn death, as the rate of preterm birth in women with symptomatic COVID-19 appears to be two to three times higher, with this rate is ten times higher than the background rate. Among women with COVID-19, there was insufficient evidence to make a decision on the possibility of miscarriage. There has also been no indication that COVID-19 causes fetal growth restriction (FGR) yet. According to the findings of two large COVID-19 in pregnancy registries, the number of small-for-gestational-age infants was comparable to historical and current levels, while COVID-19-affected pregnancies are twice as likely as SARS-affected pregnancies. The aim of the present study was to review COVID-19 adverse effects among egyptian pregnant females and neonates.

Keywords: COVID-19; Pregnant Females; Adverse Effects; Neonates

INTRODUCTION

Coronaviruses (CoVs), which belong to the Coronaviridae family, are enclosed viruses with a single-stranded RNA genome measuring 26–32 kilobases, the largest known genome for an RNA virus. The term "coronavirus" refers to how (CoV) virions appear under electron microscopy, with spike projections from the virus membrane resembling a crown, or corona in Latin (1).

Based on phylogeny, (CoVs) are divided into four genera: Alpha-CoV is a virus that causes cancer, Beta-CoV (group 1), Gamma-CoV (group 2), and Delta-CoV (group 3) (group 4). There are four lineages in the beta-CoV genus (A, B, C, and D). Lineage A viruses are distinct from other beta-CoV lineages (2).

CoV infections primarily affect the upper respiratory tract and the gastrointestinal tract in humans, and symptoms range from mild, self-limiting sickness like the common cold to more serious presentations like bronchitis and pneumonia with kidney involvement (3).

Human CoV Epidemiology and Pathogenesis:

People are continuously at risk from viral respiratory infections including severe acute respiratory syndrome (SARS) and Middle East respiratory syndrome (MERS). A novel coronavirus (2019-nCoV; SARS-CoV-2) was first detected in late December 2019 and since then, has spread to numerous provinces in China and other nations across the world making WHO declaring it as a global pandemic. Around the world,

the viral pandemic has sparked alarm and a public-health emergency, and the number of cases is continuing to rise (4).

The causes and consequences of pneumonia, on the other hand, are unknown. Early detection and diagnosis are crucial to disease control when it comes to epidemic prevention. Studies conducted by international scientists on the clinical signs, detection methods, and treatment choices for SARS-CoV-related COVID-19 (coronavirus disease of 2019) disease and proposes potential prevention techniques (5).

Significant outbreaks have occurred in various parts of China, as well as global spread to Asia, Europe, North America, South America, and Africa, as well as Oceania. The disease is potentially zoonotic, with an estimated zoonotic transmission rate with a 2–5% mortality rate is expected. Transmission from one person to another is possible. Contact and respiratory transfer, as well as the possibility of transmission by the oral–fecal pathway (6). The number of confirmed infections is currently rising on a daily basis, but there is no definitive treatment for COVID-19 pneumonia, however some promising medications are being tested. While looking into it, Coronavirus outbreaks have been on the rise for the past two decades and periodic global public health outbreaks serve as a reminder that Coronaviruses are still a serious worldwide health issue (7).

According to the most recent studies, valuable information for disease control is critically needed and highly valued as the new epidemic holds a great risk and major health burden for the whole health systems around the globe (8).

Recent COVID-19 transmission:

The majority of COVID-19 cases worldwide show indications of human-to-human transmission. Respiratory droplets or secretions, feces, and fomites are all good sources of this virus (4). Close contact with an infected person is the most common way for the virus to spread from an infected person or polluted surfaces. In terms of vertical transmission (transmission from a woman to her infant before birth or during pregnancy), Evidence now indicates that if vertical transmission does occur, it is infrequent (intrapartum). If it does happen, and it appears to be unaffected by the style of delivery, delayed cord clamping, or skin-to-skin contact (9).

Symptoms of COVID-19 in pregnant women:

The majority of pregnant women infected with SARS-CoV-2 will be asymptomatic: the PregCOV-19 Living Systematic Review found that (74%) of women who were tested positive for SARS-CoV-2 were asymptomatic, while another study from the United States found that (86%) of women who were admitted in labor and tested positive for SARS-CoV-2 were asymptomatic (10).

The majority of affected women only have mild to moderate cold/flu symptoms. Over 64,000 pregnant women with suspected or confirmed COVID-19 (reported before to November 29, 2020) have been included in the PregCOV-19 systematic review. Cough (41%) and fever (11%) were the most common COVID-19 symptoms

in pregnant women (40%), dyspnea (21%), myalgia (19%), loss of taste (14%), and diarrhea were the least common symptoms (8%). Fever and myalgia were less common in pregnant women with COVID-19 than in non-pregnant women of the same age (11).

The most common first symptoms among infected women were discovered by women from the United States. Cough (20%), sore throat (16%), myalgia (12%), and fever (12%) were the most common symptoms (12%), with 594 people in this group. One-quarter of sick women had chronic symptoms with 8 weeks or more after the onset (9).

COVID-19 harmful effects on Pregnancy:

Symptomatic maternal COVID-19 is linked to a two- to three-fold increased risk of preterm birth, mostly due to iatrogenic preterm birth. Preterm birth is expected to be about (17%) of the time (12).

The majority of these premature babies are Iatrogenic births accounted for (94%) of all births. The median gestational age at the start of the UKOSS research was 23 weeks. The gestational age at the time of birth was 38 weeks (IQR 36–39 weeks). Among the women who contributed, preterm births accounted for (27%) of all births, with (47%) of these being iatrogenic due to maternal impairment (13).

About 19% of women with symptomatic COVID-19 and (9%) of women with asymptomatic COVID-19 delivered before 37 weeks gestation period when compared to a previous cohort of pregnant women who did not have SARS-CoV-2, COVID-19-positive pregnant women were more likely to give birth before the age of 32 weeks of pregnancy or 37 weeks of pregnancy (10).

Women with symptomatic COVID-19 have a (49%) caesarean birth rate compared to (29%) in the general population (14).

The histopathology of the placenta has discovered that anomalies such as prenatal vascular abnormalities in COVID-19 sufferers had a higher rate of mal-perfusion and villitis due to unclear cause than controls (10).

COVID-19 effects on the Fetus:

Despite over 100 million confirmed COVID-19 infections worldwide, no increase in the frequency of congenital abnormalities has been recorded. There was no indication of an increase in stillbirth or infant death (11).

Among women with COVID-19, there was insufficient evidence to make a decision on the possibility of miscarriage. COVID-19 causes fetal growth restriction (FGR) is not proved. The number of small-for-gestational-age infants was comparable to historical and current levels, while COVID-19-affected pregnancies are twice as likely as SARS-affected pregnancies (15).

Symptomatic maternal COVID-19 is linked to a higher risk of preterm delivery, primarily due to iatrogenic preterm delivery, as detailed before. Prematurity is a leading cause of prenatal mortality, as well as short- and long-term illness (13,14). Despite these findings, there has been no indication that Fetal Growth Restriction (FGR) is a result of COVID-19 up till now. In contrast, two-thirds of SARS-affected

fetuses were affected by (FGR), and ultrasound monitoring of women with COVID-19 is highly recommended until more data becomes available (15).

Debate on COVID-19 Vaccination:

After a review by the Medicines and Healthcare Products Regulatory Agency, the first vaccine against COVID-19 was authorized for use in the UK on December 2, 2020. (MHRA). Other vaccines have now been licensed, and a national vaccination campaign is currently ongoing. None of the vaccinations have been subjected to specific clinical testing in pregnant women (16).

The Joint Committee on Vaccination and Immunization (JCVI) issued updated advice, confirming that the existing data do not indicate any safety concerns potential injury to the unborn child, and vaccination during pregnancy should be considered if there is a risk of miscarriage (17).

The risk of contracting SARS-CoV-2 infection is high or impossible to avoid. In addition, the JCVI indicated that if a woman has an underlying illness, vaccination should be considered. This puts her at a very high risk of major COVID-19 problems. A similar piece of advice was given for ladies who are breastfeeding (18).

Management of COVID-19 during pregnancy:

SARS-CoV-2 infection is thought to be linked to a higher risk of Venous Thromboembolism (VTE) in the mother; this is likely due to a number of factors, including decreased mobility as a result of self-isolation at home or hospitalization, as well as other obstetric or maternal illness (19).

Consequently, the cumulative risk is difficult to quantify. One patient died from a confirmed thromboembolic event, and another woman had a precipitous deterioration that could have been caused by a thromboembolic event (20).

Even if they are asymptomatic, pregnant women and women who have recently given birth who have tested positive for SARS-CoV-2 will be required to self-isolation at home if they have tested positive for SARS-CoV-2. This may affect their mobility, which will change their (VTE) risk assessment (21).

Women, according to studies conducted in the United Kingdom and around the world, those who do not receive antenatal care have a higher risk of maternal death, stillbirth, and many other complications. The number of prenatal appointments advised for women with uncomplicated pregnancies is widely established (22, 23).

Another small survey study revealed that offering remote visits to pregnant women at high risk of obstetric complications reduced the number of women who failed to show up for their appointments, and that 86.9% of women were satisfied with the care they received (24).

As previously mentioned, the majority of pregnant or recently pregnant women who took part in an online questionnaire survey thought there were hurdles to getting maternity care, and they were concerned about changes to antenatal services, such as remote consultations (13).

The proper use of personal protective equipment (PPE) protects healthcare personnel, women, and their families by acting as a physical barrier to the transmission of infectious particles found in bodily fluids (25).

Women have been affected more than men as a result of this. There is mounting evidence that this is likely to be substantially higher for pregnant women, given the additional uncertainty that comes with pregnancy (26). These fears are likely to revolve around COVID-19 itself, and the impact of social isolation resulting in reduced support from wider family and friends. Also, the possibility of reduced household finances, and the impact of social isolation resulting in reduced support from wider family and friends (27).

For women who call with suspected or confirmed COVID-19, maternity departments should create triage methods to assess the severity of their sickness. An assessment of symptoms, clinical and social risk factors, and escalation paths should all be included in triage tools. This should contain "safety netting" information about the dangers of deterioration and when to seek medical help right away (28).

Cleaning instructions for clinical areas used to treat women with suspected or confirmed breast cancer or confirmed COVID-19 should also be available (29). There is currently no data to guide for the care of women recovering with mild or moderate COVID-19 symptoms. Following the guidance statements provided above, women who have recovered should be encouraged to attend prenatal checkups (30).

The risk of a caesarean delivery should be used to identify who is having one and needing a general anesthesia (GA), which would necessitate intubation. On encountering risk factors that make conversion to a GA more likely, the choice should be made sooner rather than later. Under the previous administration, the possibility of necessitating a (GA) during a caesarean birth increased (31).

During the first wave of the COVID-19 epidemic, a retrospective analysis of anesthetic practices for caesarean deliveries at maternity institutions in the north-west of England found a fall in (GA) rates, 7.7% before the pandemic to 3.7% during it, in addition, there was a decrease in the rates of conversion from neuraxial to (GA), 1.7% to 0.8% (32).

For caesarean births where (GA) is intended from the start, all theatre personnel must be present before the start of the (GA), and to determine the kind of anesthesia used, local standard operating procedures should be developed (33).

Healthcare practitioners should adhere to national guidelines for the use of personal protective equipment (PPE) in clinical settings because the amount of (PPE) required for caesarean birth varies, a multidisciplinary discussion regarding the likelihood of a woman requiring a (GA) should be held (34).

Low-risk women who test positive for SARS-CoV-2 within 10 days of giving birth, are asymptomatic, and want to give birth at home or in a midwifery-led facility should have an informed discussion with their clinician about where they want to give birth (35).

If asymptomatic women test positive for SARS-CoV-2 on admission, they must be treated for the rest of their lives, electronic fetal monitoring with cardiotocography (CTG) during labor is not recommended. Options for fetal surveillance should be

explored with the lady, taking into account the existing uncertainties in women who are asymptomatic but have a positive SARS-CoV-2 test (36).

There is no evidence that delaying cord clamping and skin-to-skin contact between the mother and the newborn promotes SARS-CoV-2 transmission to the neonate. The well-documented benefits of these practices should be shared with the woman in order to make an informed decision and carried out in accordance with pre-pandemic practices in the lack of any other options (37).

While certain case series have indicated fetal compromise in women who are symptomatic for COVID-19 it is comforting that those measurements of fetal compromise at birth for asymptomatic women who test positive for SARS-CoV-2 have not been observed to differ from those for symptomatic women (38).

In early (latent phase) labor, women with mild COVID-19 symptoms can be advised to stay at home (self-isolate) in accordance with standard care. Women are admitted to the maternity ward and are usually recommended to return home until the baby is born, unless private transportation is available, workers who are more established can nevertheless be recommended to do so (39).

CONCLUSION:

Women with COVID-19 symptoms, whether suspected or confirmed, should be advised to labor and deliver in an obstetric unit. A complete maternal and fetal examination should be performed upon admission, including the doctor who is available and the most senior member of the team assesses the severity of COVID-19 symptoms, like: temperature, respiratory rate, and oxygen saturation (SpO₂) of the mother, and confirmation of the beginning of labor, as per usual practice. The consultant obstetrician, consultant anesthetist, midwife-in-charge, consultant neonatologist, neonatal nurse-in-charge, and the infection control team should all be informed of the woman's hospitalization. Also, an obstetrician or a respiratory physician could be part of the team. Maternal observations and assessments should be undertaken on a regular basis, when needed. Intrapartum care for healthy women and newborns is recommended, as infants with hourly oxygen saturation monitoring levels exceeding 94% should be the goal of oxygen therapy.

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