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A Controversial Debate: Vertical Transmission of COVID-19 in Pregnancy

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Nowadays, the novel coronavirus disease pneumonia (COVID-19) is one of the most highly infectious diseases worldwide (1) and its outbreak is cited as a global public health emergency by the World Health Organization (2). COVID-19 is closely related to SARS and responsible for the 2019 - 2020 coronavirus outbreak. This emerging pneumonia was first reported from Wuhan, capital of Hubei province in China in December 2019 (3). This contagious disease spreads via infected respiratory droplets; its clinical symptoms are developed fever, cough, and shortness of breath, which can lead to pneumonia, ARDS, and kidney and multi-organ failure. Older people with underlying medical conditions (e.g., asthma, diabetes, heart failure) and Immunodeficiency diseases are most susceptible to COVIS-19 infection (4). Besides, it seems that due to immunological and physiological changes during pregnancy, pregnant women are at greater risk of COVID-19 morbidity and mortality (5).

Also, there is not enough evidence for clinical characteristics and vertical transmission of COVID-19 during pregnancy and delivery. It is highly crucial to identify clinical symptoms of COVID-19 infection in the affected pregnant women in comparison with non-pregnant ones and evaluate its impact on pregnancy outcomes and neonate health (5).

In a recent retrospective review of medical records by Chen et al., nine pregnant women with confirmed COVID-19 pneumonia admitted to Zhongan Hospital in Wuhan, China from 20 to 31 January 2020 were studied. Intrauterine vertical transmission was assessed by testing amniotic fluid, cord blood, and neonatal throat swab samples for the presence of SARS-CoV-2 and in order to access the presence of COVID-19 in breast milk, first lactation samples were tested. All the nine tested women underwent caesarean section in their third trimester and had live births. None of newborns had asphyxia and their Apgar scores were high. Therefore, the clinical symptoms of COVID-19 pneumonia in pregnant women was similar to those of non-pregnant ones and there was no evidence of intrauterine and vertical transmission of disease in pregnant women with COVID-19 infection (6).

SARS-CoV-2, a new strain of coronaviruses, is pathogenic to humans. Another two notable strains are SARS-CoV and the Middle-East respiratory syndrome (MERS) coronavirus (MERS-CoV).

In the study by Lu et al., homological characterization indicated that the structure of the receptor-restricting area of SARS-CoV-2 is similar to that of SARS-CoV-1; therefore, the pathogenesis of COVID-19 infection might be similar to that of SARS-CoV-1. The risk of vertical transmission of COVID-19 might also be as low as that of SARS-CoV-1 (7).

Previous studies demonstrated that SARS infection during pregnancy is associated with adverse maternal and neonatal complications including spontaneous miscarriage, preterm delivery, intrauterine growth restriction, undergoing endotracheal intubation, admission to the intensive care unit, renal failure, and disseminated intravascular coagulopathy (8).

Thus, the behavior of COVID-19 is in contrary to that reported by Chen et al., as they found fewer adverse maternal and neonatal complications and outcomes with COVID-19 infection during pregnancy (7).

On the other hand, in a study of two cases with MERS-CoV infection during pregnancy and a literature review by Alfaraj et al., it was reported that from 11 pregnant women with MERS-CoV infection, 10 patients developed adverse outcomes. Six (55%) neonates were admitted to NICU and three (27%) died. Also, because of severe maternal respi-

ratory failure, two neonates were given birth prematurely (9).

In an article published in Medscape in 12 February 2020, since 2019-nCov has a potential to express behavior similar to that of MERS-CoV, any pregnant case suspected of 2019-nCoV infection should be screened systematically. Also, if 2019-nCoV infection is confirmed during pregnancy, both the mother and fetus should be followed up extensively (10).

Moreover, in a comment published in Lancet in 12 February 2020, it is recommended that neonates born to women with suspected or confirmed COVID-19 infection be isolated for at least two weeks after birth and not be breastfed in order to prevent close contact with the mother, as long as she is suspected of or infected with COVID-19 (11).

In conclusion, due to lack of adequate data on COVID-19 pneumonia during pregnancy, all pregnant women suspected of COVID-19 infection should be screened systematically and in case of confirmed infection, both the mother and the fetus should be followed up extensively.

Footnotes

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