

## Case study

# COVID-19 and pregnancy outcomes: initial findings show little threat, but more data are needed

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## Implications for practice and research

- ▶ Coronavirus disease 2019 (COVID-19) represents a concern about the impacts on health of pregnant women and their fetuses.
- ▶ Repercussions in pregnancy and perinatal health are unclear due to limited data available. Further longitudinal studies are required in order to evaluate the vertical transmission potential and identify pregnancy and perinatal outcomes of COVID-19.

## Context

COVID-19 caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) has been declared by WHO as a global pandemic in March 2020. The disease emerged in Wuhan, Hubei Province, China, but it is rapidly spreading and, to date, there are more than 7 million confirmed cases worldwide.<sup>1</sup> Most of reported cases have shown a mild or asymptomatic course of the disease, but a few cases have had severe presentations requiring mechanical ventilation and intensive care.<sup>2</sup> Although pregnant women are susceptible to respiratory pathogens and a more severe course of pneumonia, there is a lack of evidence on the repercussions of COVID-19 in maternal and perinatal health.<sup>3</sup>

## Methods

The main objective of this case series study was to evaluate the clinical characteristics of COVID-19 in pregnancy and the intrauterine vertical transmission potential of COVID-19 infection.<sup>4</sup> The researchers carried out a retrospective review of medical records from nine pregnant women with COVID-19, which were tested positive for SARS-CoV-2 by the use of quantitative RT-PCR (qRT-PCR) on samples from respiratory tract, in Wuhan, China. Additionally, amniotic fluid, cord blood, neonatal throat swab and breastmilk samples after the first lactation were obtained to evaluate evidence of vertical transmission. Maternal data were collected related to clinical and laboratory characteristics (age, gestational age, epidemiological history, family history, onset to delivery, signs and symptoms, count blood cells - CBC, c-reactive protein - CRP, alanine transaminase - ALT and aspartate transaminase - AST), computed tomography (CT) evidence of pneumonia and delivery (method, indication for caesarean section and treatment after delivery). A descriptive statistical

analysis was performed, and results were expressed as ranges, absolute and relative frequencies.

## Findings

None of the six samples of amniotic fluid, cord blood, neonatal throat swab and breastmilk tested for SARS-CoV-2 showed evidence of vertical transmission of COVID-19. All pregnant women were given oxygen support (nasal cannula), empirical antibiotic treatment and were submitted to caesarean section in third trimester. None of them developed severe COVID-19, or died. Six patients (67%) were administered antiviral therapy. The most common symptoms presented were fever (7; 78%) and cough (4; 44%). Lymphopenia was observed in five (56%) participants. Nine livebirths were registered and there was no observed neonatal asphyxia.

## Commentary

COVID-19 pandemic has been challenging the health systems worldwide and there are still many gaps about its epidemiology, pathology and consequences. This retrospective descriptive study suggests that the clinical presentation of pregnant women who tested positive for COVID-19 is no different to those reported for non-pregnant adult patients and there is no evidence of intrauterine infection transmitted vertically in late pregnancy. Despite the importance of descriptive studies in providing hypothesis for analytic studies, their results should be interpreted cautiously. On the other hand, reporting data from case series studies is relevant in a context of global health emergency of a novel disease because of the lack of knowledge on several aspects of COVID-19, especially in vulnerable group such as pregnant women and neonates. Based on the findings of this study, it is not possible to exclude vertical transmission potential of COVID-19 or evaluate the repercussions in maternal and perinatal health. The generalisability of the results may be limited due to the small sample size from a single centre, that all participants were in the third trimester, none had severe manifestations of COVID-19 odds ratios and relative risks. Future research on maternal and perinatal outcomes related to COVID-19 in pregnant women should be conducted applying appropriate methods to establish casual links. This may include studies such as prospective longitudinal cohorts, case-control or nested studies, and also enrolling participants in different stages of pregnancy with diverse clinical presentations of COVID-19 and other methods of delivery.

**Competing interests** None declared.

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