



Mini Review

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# Pregnancy and Covid-19 - What Have We Learned in Two Years of the Pandemic? A Mini Review



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**Abbreviations:** WHO: World Health Organization

## Mini Review

Since the end of 2019, we have experienced a global pandemic due to the new coronavirus (Covid-19) [1]. Although most cases of infection have mild symptomatology, determining the population at risk for complications is critical in this context. The potential maternal and perinatal adverse effects of the virus are the targets of studies due to the harmful consequences to not only one, but two individuals.

In almost two years of the pandemic, several studies have pointed out that pregnant women have higher morbidity and mortality compared to non-pregnant women. Physiological changes in pregnancy may contribute to the higher risk, mainly due to immune suppression, decreased lung capacity (associated with elevation of the diaphragm by the pregnant uterus with restricted lung expansion), and increased risk of thromboembolic disease [1-4].

The symptoms reported by pregnant women with COVID-19 do not differ from those in non-pregnant patients, having as main complaints fever and cough [1,5] and may present, in addition to respiratory symptoms, also gastrointestinal symptoms [1]. Among the laboratory parameters, elevated levels of C-reactive protein, lymphopenia, and increased leukocyte levels are among the most frequent findings [5,6]. As for imaging exams, although many guidelines suggest avoiding ionizing radiation during pregnancy, in selected cases we may require evaluation by chest computed tomography scan with a low dose of ionizing radiation (less than

50mGy) and with fetal protection (abdominal lead shields), for differential diagnosis exclusion purposes and evaluation of Covid-19-associated impairment and complications [7].

Infected pregnant women have a higher risk of intensive care unit admission (including the need for invasive ventilation and extracorporeal membrane oxygenation), a higher probability of a miscarriage [2,3], preterm birth [1-3,5] and preeclampsia [2,3,5,8,9]. It is important to highlight that, both in Covid-19 infection and preeclampsia, vascular endothelial damage can lead to multiple organ damage, making it difficult to even make a differential diagnosis between these two situations [8].

In addition, certain underlying conditions including age over 25 years [1], obesity [5,10], hypertension [2,5,10] and diabetes [2,5,10] are associated with worse maternal-fetal outcomes. As for age, the need for invasive mechanical ventilation and death occurs more frequently among women aged 35 to 44 years than among those between 15 to 24 years [1].

Despite the low probability of vertical transmission [5], neonates are also likely to have intrauterine growth restriction, low birth weight, and also higher intensive care unit admissions and stillbirths compared to children of pregnant women without Covid-19 infection [1,2,3]. Regarding breastfeeding, the World Health Organization (WHO) recommends that mothers with suspected or confirmed infection be encouraged to initiate or continue breastfeeding (with appropriate safety measures such

as hand hygiene and mask use) [1,11,12]. This is based on the fact that viral RNA detected in breast milk does not correspond to viable or infectious viruses and on the widespread benefits of breastfeeding [11].

Due to the absence of safe and effective treatment, prevention against Covid-19 is still the best alternative. Avoiding close contact with others, keeping the proper distance of at least 2 meters, wearing a mask, and frequently sanitizing hands with soap and water are fundamental [12].

In this context of prevention, the use of elastic stockings in patients infected with Covid-19 in outpatient follow-up can also be encouraged, in the search for protection against deep vein thrombosis [13]. In case of hospitalization, the risk of thromboembolic events increases significantly, especially in those over 35 years of age, in the third trimester of pregnancy, and when the patient is hospitalized for more than three days. The use of low molecular weight heparin should have its risks and benefits considered case by case [13].

Vaccination for covid-19 has been one of the most effective public health measures to combat the spread of the virus<sup>14</sup>. The WHO has recommended that pregnant women should be vaccinated whenever the benefits of vaccination outweigh the risks [11]. Pregnant women - although there are no clinical trials of vaccines in this group - transfer to the fetus the antibodies produced after vaccination against COVID-19, thus causing passive immunity in the child after birth [5,14]. The vaccines do not contain replicable viruses or risk of developing the disease but can generate side effects due to activation of the immune system [12]. In fact, one of the most worrying side effects after the application of the COVID 19 vaccine is thrombosis. The described cases are reported especially after the application of vector vaccines. It suggests that women during pregnancy or postpartum period should get mRNA vaccines.

In addition to physical health, the pandemic has severely compromised our mental health. Women in the prenatal and postnatal period face a period of increased vulnerability and should receive special attention at this point, due to the risk of mood disorders such as depression and anxiety [2,15,16]. In summary, pregnancy is a period of risk for secondary issues to Covid-19 infection. The need for safe and effective drugs for this virus is urgent due to maternal and fetal morbidity and mortality.

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