Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

and functional heterogeneity of neutrophils is increasingly being recognised along with the role of neutrophils in resolving inflammation.[2,10] For therapeutic development, fine-tuning of neutrophil recruitment and responses could be important in balancing protective, reparative, and injurious effects during pulmonary inflammation. Sensitive and rapid point-of-care tests to monitor the inflammatory profiles of patients to guide therapy would be of great use. Measuring the activities of disease-associated immune modulators, such as proteases, might be a step towards personalised and timely therapeutic approaches for COVID-19. Although Keir and colleagues[5] have provided evidence in this trial that broad-spectrum targeting of neutrophil serine proteases is not beneficial for patients with COVID-19, we should remain open-minded that different approaches to precision-target neutrophils might enable improvement of clinical outcomes.

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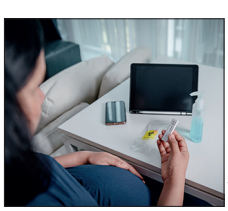
Omicron in pregnancy: time to breathe easier?

COVID-19 has been concerning for pregnant women since the beginning of the pandemic, owing to the risk of severe maternal morbidity and the need for critical care in a population that is normally healthy.[1] However, the emergence of the omicron (B.1.1.529) variant might have marked a turning point for pregnant patients. Omicron is associated with less severe disease in many individuals, and possibly pregnant women as well.

In *The Lancet Respiratory Medicine*, Sarah J Stock and colleagues examined maternal and infant outcomes during a delta (B.1.617.2)-dominant period and an omicron-dominant period.[2] Using data from a Scottish registry of pregnant women with COVID-19, the authors compared 4968 patients infected with SARS-CoV-2 during the omicron wave (from Dec 15, 2021, to Jan 31, 2022) with 4945 patients infected during the delta wave (from May 17 to Dec 14, 2021). Stock and colleagues assessed maternal admissions to critical care within 21 days of infection, as well as maternal death, preterm birth, stillbirth, low Apgar score, neonatal infection, and neonatal mortality within 28 days of maternal infection.

Their findings were reassuring. Compared with the delta variant, women with infections during the omicron-dominant period had a significantly lower risk of critical care admission (0·3% [13 of 4968] *vs* 1·8% [89 of 4955]; adjusted odds ratio 0·25, 95% CI 0·14–0·44) and preterm birth (1·8% [37 of 2048] *vs* 4·2% [98 of 2338]; 0·57, 0·38–0·87). Women with infections during the omicron-dominant period also appeared to have fewer stillbirths and neonatal deaths than those infected during the delta-dominant period. The results suggest that omicron might be less virulent in pregnancy, despite being more contagious than delta. Does this mean we can worry less about pregnant women at this stage in the pandemic? We highlight here three reasons to remain vigilant.

The first issue is whether vaccination contributed to decreased morbidity during the omicron wave. Stock and colleagues appropriately adjusted for vaccination. They also showed in sensitivity analyses of unvaccinated women that infections during the omicron-dominant period were associated with a persistently lower risk of critical care admission and preterm birth. However, associations in vaccinated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women were not provided. COVID-19 vaccines are effective at reducing severe morbidity in pregnancy.[3] The authors should be able to show that infections during the omicron-dominant period at least led to fewer events in vaccinated women. Without this information, it is impossible to determine the added value of vaccination or protective effect overall. In an earlier study of the same Scottish dataset, Stock and colleagues showed that unvaccinated pregnant women were younger and more disadvantaged.[4] These characteristics affect the chance of infection and risk of severe morbidity and make the results from this group less generalisable. As more and more pregnant women become vaccinated, a more nuanced assessment of vaccination will be needed to determine the extent to which future variants are harmful.

A second issue is the measurement of severe pregnancy morbidity, the key outcome when it comes to COVID-19. Stock and colleagues examined maternal critical care admission, preterm birth, stillbirth, neonatal death, and Apgar scores. However, these complications do not adequately capture severe maternal morbidity. Efforts to standardise the definition of severe maternal morbidity have progressed considerably in the past decade.[5] Severe maternal morbidity includes concrete conditions such as respiratory failure, heart failure, and eclampsia.[5,6] Although severe maternal morbidity frequently requires critical care, admission to an intensive care unit might occur for unrelated reasons.[7] Some women might be admitted simply out of caution. Critical care admission cannot capture severe maternal morbidity in hospital centres that do not have intensive care units. Critical care, therefore, has uncertain value as an indicator of severe maternal morbidity.

Currently, only one study considered the risk of severe maternal morbidity during the omicron wave.[6] In an analysis of 15 633 pregnant women in the USA, omicron infection appeared to be associated with an increased risk of respiratory morbidity but not other types of severe maternal morbidity compared with no infection.[6] However, the investigators could not account for vaccination. Stock and colleagues had vaccination data, but did not assess severe maternal morbidity, including respiratory complications that can be prevalent in pregnant women with COVID-19 infection. For now, we cannot know with certainty that omicron does not increase the risk of severe maternal morbidity.

Third, Stock and colleagues analysed only patients with infection. They did not have an uninfected comparison group. The authors were able to show that infection with omicron is not as concerning as delta infection, but they did not provide risks relative to uninfected pregnancies. It would not be surprising to find that omicron continues to drive severe maternal respiratory morbidity, considering the known respiratory effect of SARS-CoV-2 and hospitalisation rates that have yet to return to normal.[3,6,8] An uninfected comparison group is essential to understand how much risk omicron continues to pose in pregnancy.

Stock and colleagues designed a much-needed study showing that the omicron variant is less risky to pregnant women than the delta variant. However, the bigger question of how much risk remains with the omicron variant has yet to be answered. To fill this gap, future research will need to pay careful attention to vaccination, relevant measures of severe maternal morbidity, and include an uninfected comparison group.

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