Third dose of COVID-19 vaccine: is there any place for it for pregnant women?

To the Editor,

Coronavirus disease-2019 (COVID-19) vaccination has been shown to be effective for COVID-19 primary prevention. Traditionally, two vaccine doses are required. There may be a decrease in immunity level after complete vaccination (1). Many scientists have proposed the use of an additional third dose vaccination when there is a new emerging variant and a possible decline in population immunity in general after standard mass vaccination. However, because the effectiveness of the third vaccine dose is unknown, any research into its efficacy is of interest. There are also numerous new ideas for using a new type of COVID-19 crossing to the previously fully vaccinated one. In many countries, the third dose of COVID-19 vaccine has been used to manage the emerging omicron variant of severe acute respiratory syndrome-coronavirus-2. It appears that those who received a less effective COVID-19 vaccine have insufficient immunity against the variant and require a booster. According to a recent study, a booster dose is effective in increasing immunity against the omicron variant (1). In this letter, the authors would like to discuss the specific situation for pregnant women.

COVID-19 vaccination is generally recommended for pregnant women. The vaccination can begin during the second trimester and be combined with other routine antenatal vaccinations (2). This study also found that a 12-week period or longer stimulated a good immune response after COVID-19 vaccination, and it can boost the immune level after the second dose of vaccine by about 1.2 times compared to the single first dose (2). It is currently unknown whether a third dose of COVID-19 plays a role in pregnant women with the current prevalence of the omicron variant.

There are numerous factors to consider. First, if pregnant women receive the first dose early, there is still time for the third dose of vaccine, which can be administered three months after the second dose. The second source of concern is the predicted increase in the efficacy of the third dose vaccine. The level of protection after the second dose of vaccine has been reported to be between 86 and 90% (2). Using this data in a recently published predictive model for the expected efficacy of the third dose of COVID-19 vaccine, the expected protective efficacy after the third dose booster is 94% (2), leaving a gap of about 4-8% that the booster can stimulate increased immunity. Given that the COVID-19 vaccine has been proven safe and effective, there may still be a place for a third dose of COVID-19 vaccine for pregnant women if the vaccination schedule and pregnancy progression are compatible.

In the case of decreasing immunity, a third dosage of vaccine may be required. This exercise is likely to have a greater impact on third trimester pregnancies. COVID-19 can have a negative impact on pregnancy, especially if contracted during the third trimester. While a study is underway, results are not yet available. It is known that COVID-19 infection may raise the risk of premature birth, especially if contracted during the third trimester (3). Premature birth can result in a variety of difficulties for both the infant and the mother. Pregnant women who get COVID-19 in the third trimester are more likely to suffer serious disease, such as pneumonia and respiratory distress (3). This could result in more intensive medical procedures and difficulties for the mother. COVID-19 infection during pregnancy, particularly in the third trimester, may raise the risk of fetal discomfort, growth restriction, and stillbirth (3). However, it is crucial to highlight that these hazards are of low likelihood.

Finally, the decision to provide a third dose of the COVID-19 vaccine should be based on a comprehensive assessment of the existing scientific information, advice from health authorities, and consideration of the unique environment and demographic being targeted. It is best to follow the advice of healthcare professionals and public health officials who will constantly evaluate the benefits, dangers, and effectiveness

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of subsequent vaccine doses. When considering the use of a third dose, numerous aspects must be considered in order to determine its benefit-harm-effectiveness. A third dose may provide improved protection against COVID-19, particularly against developing variants, as well as potentially lowering the risk of severe illness, hospitalization, and death. The greater predicted protective efficacy of 94% indicates a significant benefit in terms of infection prevention and consequences. Nonetheless, any potential hazards or deleterious effects connected with a third dose must be considered. While COVID-19 vaccinations have generally shown a satisfactory safety profile, subsequent doses must be monitored on an ongoing basis to ensure their safety. The recognized negative effects of the vaccine should be balanced against the potential benefits. Finally, evaluating the effectiveness of implementing a third dosage entails taking into account aspects such as current vaccination coverage, the amount of community transmission, and the possible influence on virus propagation. It is critical to determine whether a third dose would make a meaningful difference in acquiring "herd immunity" or controlling the recent upsurge in the COVID-19 pandemic.

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