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Prespective

Efficiency of SARS-CoV-2 mRNA Vaccine in Pregnancy

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ABOUT THE STUDY

Infection of SARS-CoV-2 during pregnancy may raise the likelihood of unfavorable maternal and newborn outcomes. The efficacy of SARS-CoV-2 vaccinations in expectant women is unknown. The effectiveness of mRNA vaccines in preventing proven SARSCoV-2 infection in pregnant women at a national referral hospital, which attends to more than 75% of deliveries, was assessed using a test-negative case-control trial. Among the 2,020 pregnant women who complied with the study's requirements, 397 tested positive for SARS-CoV-2 RT-PCR, whereas 1,623 tested negative. In comparison, vaccination effectiveness 14 days after the first dose but before the second dose was 40.3 %, while vaccine effectiveness 14 days after the second dose was 67.7% (95% CI, 30.5-86.9). (95% CI, 0.0-80.4). All nine cases of the severe or critical disease were among unvaccinated people, and there were no deaths among pregnant women with PCR-positive results. The high level of protection offered by mRNA vaccines against confirmed SARS-CoV-2 infections encourages the inclusion of pregnant women in immunization programs.

Worldwide emergency use authorization has been granted for a number of SARS-CoV-2 infection vaccines. BNT-162b2 (Pfizer) and mRNA1273 (Moderna) were the first vaccines to receive such permission. An efficacy of 94%-95% in preventing proven SARS-CoV-2 infection or symptomatic COVID-19 disease was found in early randomized clinical studies utilizing these vaccinations. Later research on effectiveness in real-world situations has found comparable high rates of success in preventing infection and nearly 100% effectiveness in preventing serious illness or death. Although SARS-CoV-2 infection in pregnant women is frequently asymptomatic, it is linked to a greater incidence of newborn respiratory distress and hospitalization. However, no change in infant mortality has been seen in children born to women who had SARS-CoV-2 infection during pregnancy. Up to 38% of children exhibiting positive IgG antibodies between 13 and 28 weeks of gestation have been recorded when maternal infection occurs >60 days prior to delivery. Pregnant women were not included in the vaccination effectiveness trials despite having a potentially significant risk of developing more serious illnesses and negative consequences. Therefore, there aren't any reliable data available about the efficacy of SARS-CoV-2 vaccines in pregnant women, save from extremely limited data on women who were unintentionally included in research studies. We conducted this study to evaluate the SARS-CoV-2 mRNA vaccine in pregnant women on a countrywide scale.

The efficiency of the SARS-CoV-2 vaccine in pregnant women has never been studied on this scale before, to our knowledge. According to our research, the vaccine was 68.5 % efficient in preventing any known infections. An increased risk of poor maternal and newborn outcomes exists in pregnant women who have SARS-CoV-2 infection. They have a higher risk of fetal death, severe pre-eclampsia, preterm birth, premature membrane rupture, and venous thrombotic events. The BNT162b2 vaccine has been demonstrated to generate a strong humoral response in pregnant women with effective transfer to the fetus, in contrast to early investigations that have not yet revealed any evident safety issues with the mRNA vaccines in pregnant women. These findings, along with the fact that the mRNA vaccines are a reasonably efficient means of avoiding SARS-CoV-2 infection, give compelling evidence in favor of incorporating pregnant women in SARS-CoV-2 immunization programs. While the mRNA vaccines against SARS-CoV-2 infection appear to be safe and efficacious, comparable data for vaccines employing other platforms (e.g., adenovirus vector-based vaccines, inactivated vaccines) are not yet available. For further vaccines to be recommended for use in pregnant women, urgent clinical trials and real-world safety and effectiveness investigations are required. Our study has several advantages, including a sizable national sample of expectant mothers, reliable data on testing and immunization, and the availability of information on variations of concern. The 74 alpha variant infections (formerly known as the B1.1.7 variant), 163 beta variant infections (previously known as the B1.351 variant), and 156 variants of unclear status infections were all found in these pregnant women. Our prior research has demonstrated that the Pfizer-BNT162b2 vaccine is 75% effective against the beta variants and

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89.5% effective against the alpha version (formerly known as the B1.1.7 variant) (previously known as the B1.351 variant). The alpha variation predominated during the first half of the research, while the beta variant was responsible for more than 75% of infections during the second half. We were unable to adequately assess the effectiveness of the vaccine against serious illness and death because of the extremely low number of outcome events.

However, there were no deaths among the PCR-positive pregnant women, 8 cases of COVID-19 severe disease, and one case of critical disease, and all of these cases were among the unvaccinated. The Pfizer-BNT162b2 and Moderna-mRNA-1273 vaccines individual efficacy was not evaluated. They are equally effective, nevertheless, according to important clinical investigations. The mRNA vaccines are linked to a 67.7% efficiency against documented infection >14 days after the second dosage, in conclusion. Even though it is less effective than the effectiveness seen in non-pregnant people, the exceptionally low incidence of more severe outcome events within the group that received the immunization offers compelling justification for include pregnant women in SARS-CoV-2 vaccination campaigns.