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Update on Covid-19 Vaccine While Pregnancy

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ABSTRACT
There is an increased probability that PL who acquire COVID-19 will necessitate intensive care and manifest preterm births. Nevertheless, a growing body of research has presented substantiating evidence for the safety and efficacy of COVID-19 vaccines in the context of pregnant women and their infants, as well as indications of maternal antibody transfer. Thus, review the effects on CODIV-19 vaccine PL, benefits, incidence, and infant protection.
Key words: *CODIV-19 vaccine, PL, benefits, incidence, infant protection.*

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INTRODUCTION

Studies have concluded that "during pregnancy, women experience physiological and immunological changes that can make them more vulnerable to contracting COVID-19 and experiencing severe illness".[1,2] Studies have concluded that the "infection rapidly spreads through the maternal vasculature, and symptoms start to manifest after an incubation period that can range from one day to 14 days, with an average of 4.5–5.8 days". [3,4] Studies have concluded that there is an "increase in inflammatory cytokines (IL-1, IL-2, IL-7, IL-10, granulocyte-colony stimulating factor, interferon-alfa-inducible protein 10) and tumor necrosis alfa in blood, placental, and vaginal samples from pregnant women following COVID-19".[5,6] Additionally, studies have concluded that "significant levels of these mediators have been associated with the emergence of infection-related complications, along with a decline in T cells, a rise in leukocytes, and an elevated neutrophil-to-lymphocyte ratio".[1,7,8] According to seroprevalence studies, the "risk of contracting the virus is equivalent for women in the first, second, and third trimesters of pregnancy; however, the third trimester carries a higher risk of severe complications". [9,10] Studies have concluded that pregnant women who test positive for the infection are at a heightened risk of requiring an emergency cesarean section due to the development of pre-eclampsia, which increases the likelihood of ICU admission. [11] Therefore, we have reviewed pregnant ladies (PL) after the COVID-19 vaccine.

EFFECT OF VACCINE ON PL

Studies have concluded that "PL all throughout the world have faced numerous uncertainties since the SARS-CoV-2 virus invaded the world". [12] Studies have concluded women are more susceptible to blood clot development, for example, owing to pregnancy's hypercoagulability. COVID-19 patients had a greater risk of clotting, suggesting that pregnant women may be at increased risk of maternal venous thrombosis. [13] Studies have found that the inability to move around as much while in the hospital may make this worse. [13] Studies have concluded that it has effects on people other than pregnant women. Additionally, studies have found that its effects also affect the infant and the newborn. [14] A study conducted in China also found that "5.3% of newborns born to mothers with COVID-19 experienced neonatal distress".[15] Additional studies have also documented instances of "premature rupture of membranes and fetal distress in a comprehensive review.[16] Studies have concluded that placental inflammation during SARS-CoV-2 infection can lead to fetal growth retardation and induced abortion".[17] Studies have concluded that "infants born to women with the infection experience significantly increased rates of severe neonatal morbidity, perinatal morbidity, and mortality".[18] Furthermore, studies have concluded that "maternal SARS-CoV-2 infection can have a significant impact on fetal brain development, potentially increasing the risk of future mental illness".[19]

BENEFITS

Studies have concluded that "PL have undergone evaluations to assess the immunogenicity, safety, and acceptability of various COVID-19 vaccines". [20] Studies have concluded that it is recommended that pregnant women receive the COVID-19 vaccine, as the Vaccine Adverse Event Reporting System has provided more reliable and reassuring data that supports the safety of maternal vaccination. [20] Collier et al.'s study looked at the "immunogenicity of the mRNA vaccine in a group of 22 pregnant women and 6 non-pregnant women who weren't SARS-CoV-2 infected. Pregnant women experienced immune responses as a result of the vaccination, and the newborn received the immunization's antibodies through the umbilical cord, blood, and breast milk". [21] Researchers have found that immunization with COVID-19 messenger RNA during pregnancy and nursing leads to strong humoral immunity, similar to what was seen in women who are not pregnant, as shown in a relevant cohort study by Gray et al. Vaccination prepares the immune system to identify the spike protein of the SARS-CoV-2 infection in pregnant women.[22] Studies have concluded that, "when comparing the group of pregnant women who receive the COVID-19 immunization to the non-pregnant group, there is no significant difference in the profile of side effects. Studies have shown that mRNA vaccines elicit similar immune responses in pregnant, nursing, and non-pregnant individuals". [22] Furthermore, Shimabukuro TT et al. presented initial results on the safety of mRNA COVID-19 vaccines in pregnant individuals based on data from three U.S. vaccine safety monitoring systems: the "V-safe after vaccination health checker," the "V-safe pregnancy registry," and the "vaccine adverse events reporting system."[23] The study incorporated data from three sources, collected between February 28, 2021, and December 12, 2020. The participants' age range spanned from 16 to 54 years.[24]

INFANT PROTECTION

"Studies have concluded that neonates may acquire SARS-CoV-2 in utero from mothers with COVID-19, as increased IgM antibodies to SARS-CoV-2 have been identified in neonates". [25, 26] Studies have concluded that "quarter of infants born to women with COVID-19 require admission to a neonatal facility or specialized care". [27] Studies have concluded that "the impact of SARS-CoV2 on newborns and neonates appears to be minimal or unknown. The infection has been associated with preterm births, fetal distress, respiratory distress, thrombocytopenia, and a severe neonatal/perinatal morbidity index".[26,28] Due to this significant burden, it is highly recommended to administer prenatal immunization in order to safeguard the health of both the mother and the newborn.

INCIDENCE

Studies have also concluded that "pregnancy is a R/F for severe COVID-19, regardless of any other circumstances".[29] Studies have also found that "pregnancy is still a R/F for going to the hospital, the intensive care unit (ICU), and needing extracorporeal membrane oxygenation because of COVID-19, even though the risk of severe illness or death to the mother is very low. This is in contrast to women who were not pregnant at the time of the study".[29] Studies have concluded that "comorbidities such as advanced maternal age, obesity, diabetes, and heart disease all enhance these risks to an even higher level. Exposure to COVID-19 during pregnancy has also been associated with an increased risk of stillbirth and maternal death".[30, 31,32] Studies have also concluded that an "increased risk of stillbirth and maternal death has also been linked to COVID-19 exposure during pregnancy". In addition, despite the fact that the risk seems to be rather low, there have been several instances of SARS-CoV-2 being passed on within the uterus that have been painstakingly recorded. These cases have been extensively documented.[33] In addition, research has revealed that neonates are more likely to have severe illness as a direct result of being infected with SARS-CoV-2.[34] As a result, it is very necessary to "administer maternal vaccination in order to provide protection to the neonate. Studies have also found that immunizations given to pregnant women can protect both the mother and the baby. This is because the baby's protection against pathogens starts in the first six months of life, when maternal IgG is transferred through the placenta".[35]

Studies have also found that even though it has been shown that immunization against other respiratory viruses like flu during pregnancy is very safe and effective, these vaccines are still being studied in pregnant women and have been for decades.[36,37,38] Furthermore, studies have shown that there is a "dearth of early information on the safety and efficacy of COVID-19 vaccines in pregnancy; hence, countries all over the globe have come to a variety of different conclusions about the question of whether or not people should be vaccinated while pregnant".[40] In addition to this, studies have also concluded that this is the "case despite the fact that a SARS-CoV-2 infection poses a demonstrable risk to pregnant patients and their neonates. According to the Covid-19 Maternal Immunization Tracker (COMIT), a website that provides global information on countries' public health policies regarding recommendations

about COVID-19 vaccines for pregnant and lactating people, 19 countries recommend COVID-19 vaccination for some or all pregnant or lactating people, while 15 countries specifically recommend against vaccination in this population".[40] Studies have also concluded that "COMIT is a website that provides global information on countries' public health policies regarding recommendations about COVID-19 vaccines for pregnant and lactating people. For some or all pregnant or lactating people, 106 countries recommend the COVID-19 vaccination. Specifically for this population, 15 countries recommend against vaccination".[39,40]

Studies have also found that there are a wide variety of vaccination recommendations that can be found all over the world. Studies have also concluded that it is reasonable to assume that the frequency of people who recommend getting vaccinated against COVID-19 during pregnancy varies substantially. However, as of "April 2022, the US Vaccine Safety Datalink indicated that only 69.4% of pregnant women aged 18–49 years had been completely vaccinated with COVID-19 vaccines before or during pregnancy".[41] "This figure represents a decrease from the previous year's estimate of 71%. All of the main professional health organizations in the United States, such as the American College of Obstetricians and Gynecologists (ACOG) and the Society for Maternal Fetal Medicine (SMFM), have agreed on this advice". [41]

CONCLUSION

PL have a higher susceptibility to severe illness from COVID-19, which can also increase the risk of premature birth for their children. This information highlights the importance of the vaccine in safeguarding the health of pregnant women and the positive impact it can have on newborns when their mothers are immunized against COVID-19. Multiple studies have demonstrated the positive impact of the vaccine on both the mother and the newborn. The results highlight the effectiveness of vaccination in safeguarding pregnant women and their newborns from the known risk of SARS-CoV-2. Given the increasing seriousness of COVID-19 during pregnancy due to the surge of the delta variant, it is crucial to prioritize COVID-19 vaccination for pregnant women. Additionally, individuals planning to become pregnant should not delay getting vaccinated.

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