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Reassuring transfer outcomes after COVID-19 vaccination



The COVID-19 pandemic has brought significant morbidity and mortality to millions of individuals over the last 2 years. The novel SARS-CoV-2 impacts the respiratory and cardiovascular systems most acutely, but its potential effects on other organ systems cannot be ignored. Although studies show an increased risk of severe obstetric morbidity and mortality associated with the COVID-19 infection during pregnancy (1, 2), there is also increasing attention on the effect of an infection or vaccine on the reproductive tract and, more specifically, on fertility outcomes.

In vitro studies have hypothesized that the SARS-CoV-2 infection is not likely to have an effect on the endometrial function (3), and there is no current evidence of infection of gametes or embryos by the virus (2). Clinical studies on the specific impacts of the SARS-CoV-2 and its vaccine on fertility and assisted reproductive technology (ART) outcomes are just emerging. Orvieto et al. (4) compared cycle outcomes in 36 couples before and after vaccination with the BNT162b2 (Pfizer) vaccine, but no differences in cycle outcomes, including semen parameters and the number of mature oocytes and top-quality embryos, were observed. In this issue, the same group of researchers have expanded their prior study in both size and scope to examine the effects of COVID-19 infection and vaccination on transfer outcomes in frozen embryo transfer cycles (5). In this single center, retrospective cohort study, Aizer et al. (5) included 428 patients who underwent 672 frozen embryo transfer cycles. They compared the outcomes among 4 groups of patients: 26 patients with immunity from an infection, 115 patients who received the COVID-19 vaccination, 93 patients with no immunity who received treatment in the same study period in 2021, and 194 patients without immunity who received treatment in 2019 before the pandemic. They found no differences in the evaluated outcomes between any of the groups including, most importantly, ongoing pregnancy rate per transfer. Given its limited study time frame, live birth rate has not been reported but would be an important follow-up from this study.

The article comes at a critical time. Vaccine hesitancy, especially among women planning pregnancy or currently pregnant, has hampered government and health organization efforts to increase population-wide vaccine uptake. Although this is a relatively small study (220 transfers in 115 vaccinated patients), it is one of the first published reports of transfer outcomes in the ART population after vaccination. It is reassuring news to see no effect of the vaccine on pregnancy rates. The investigators are in Israel, which is one of the first countries to have widespread vaccination, and they are to be commended for collating their data expeditiously for publication.

There are a few limitations to be considered, however, beyond the sample size. First, the patients were quite young with a mean age of approximately 31 years, limiting the generalizability of the study to older patient populations. There also was heterogeneity in the embryo stage at transfer.

Approximately 50%–60% of the transfers were of cleavage stage embryos, and none of the embryos underwent preimplantation genetic testing, which may limit generalizability in countries and clinics wherein blastocyst stage transfer and preimplantation genetic testing are more common. The last variable is the longer time to frozen embryo transfer after infection vs. after vaccination, which likely occurred naturally as vaccine availability slowly increased over time. There may be an effect of an acute or subacute vs. resolved COVID-19 infection on in vitro fertilization outcomes. They had a small number of patients with immunity attained through infection and did not include data regarding the severity of the infection. With the increasing awareness of post-COVID-19 conditions (also known as long COVID-19) and continued infection waves worldwide, it will be interesting to see future studies of ART treatment outcomes in patients who have had COVID-19.

Despite these limitations, Aizer et al. (5) present novel findings at a crucial time to help the reproductive community in patient counseling. The findings add support to the recommendations of major health organizations, including the Centers for Disease Control and Prevention, the American Society for Reproductive Medicine, and American College of Obstetricians and Gynecologists, for vaccination against COVID-19 for patients seeking fertility.

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