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COVID-19 vaccination does not impact female fertility as observed in IVF/ICSI-fresh embryo transfer cycles: A retrospective cohort study. Jacobs Emily, Summers Karen, Sparks Amy, Mejia Rachel. Division of Reproductive Endocrinology and Infertility, Department of Obstetrics and Gynecology, University of Iowa Hospitals and Clinics, Iowa City, IA.

BACKGROUND: Reproductive age women have been found at the forefront of COVID-19 vaccine hesitancy, citing concerns about the vaccine’s effect on future fertility, current pregnancy, and breastfeeding (among others). As of September 2021, only an estimated 31% of pregnant patients have been vaccinated against COVID-19. Given symptomatic pregnant women with COVID-19 have a 70% increased risk of death compared to non-pregnant women with COVID-19, it is of utmost importance to address the vaccine concerns of reproductive age women in a timely and thoughtful manner.

OBJECTIVE: The aim of this study was to investigate the impact of COVID-19 vaccination status on IVF/ICSI-fresh embryo transfer cycle stimulation characteristics and clinical outcomes.

MATERIALS AND METHODS: Patients undergoing IVF/ICSI-fresh embryo transfer cycles at a single academic institution from December 14, 2020 to September 30, 2021 were included. All embryo transfers occurred on day 5 post oocyte retrieval. Cycle characteristics and clinical outcomes were compared between the two groups. T-tests, Mann-Whitney U tests, and Chi-squares were used for bi-variate analysis. Generalized estimating equations were used to control for multiple cycles per patient and odds ratios were calculated adjusting for age and body mass index (BMI). In addition, a subanalysis was performed excluding poor responders (< 5 oocytes retrieved).

RESULTS: One hundred and forty-two patients were vaccinated against COVID-19 and 138 patients were unvaccinated. In the vaccination group, 149 patients were fully vaccinated and 15 patients were partially vaccinated. The average number of oocytes retrieved (14 vs. 15 ± 9), number of mature oocytes (6 ± 4 vs. 7 ± 5), fertilization rates (62.6 vs. 18.6 ± 59.1 ± 20.1) and number of high-quality embryos produced (4 ± 3 vs. 4 ± 3) were also similar. In addition, after controlling for factors that can influence IVF success (age and BMI) there were no significant differences in ongoing clinical pregnancy rate (AOR 0.79, 95% CI 1.08 – 0.54) and miscarriage rate (AOR 2.15, 95% CI 0.62 – 7.47) in vaccinated vs. unvaccinated patients. Lastly, a sub-analysis excluding poor responders also showed no difference in ongoing clinical pregnancy rate (AOR 0.91, 95% CI 0.55 – 1.52) and miscarriage rate (AOR 2.10, 95% CI 0.53 – 8.11).

CONCLUSION: To the best of the authors’ knowledge, this is the largest study investigating the impact of COVID-19 vaccination (with 142 vaccinated participants) on assisted reproductive technology (ART). There is no evidence to suggest that COVID-19 vaccination negatively affects cycle stimulation characteristics, embryological variables, or clinical outcomes in ART. The results of this study can be used to provide reassurance to both fertile and infertile patients considering COVID-19 vaccination.

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