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LIVE BIRTH AND NEONATAL OUTCOMES AFTER COVID-19 VACCINATION

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OBJECTIVE:

Despite multiple studies demonstrating safety of COVID-19 vaccination for fertility and early pregnancy outcomes, concerns remain in the general public regarding the COVID-19 vaccine in women who are trying to conceive or are pregnant. The objective of this study is to evaluate any association of COVID-19 mRNA vaccination prior to conception with live birth and neonatal outcomes in patients undergoing IVF.

MATERIALS AND METHODS:

This study included patients who underwent a single, euploid, frozen-thawed embryo transfer (SEET) at a single academic reproductive center from February through March 2021. The study group consisted of patients who received two doses of an mRNA COVID-19 vaccine prior to embryo transfer, and the comparison group was comprised of unvaccinated patients. Live birth (LB) rate, gestational age (GA) at delivery, and birth weight (BW) were compared between the groups using chi square and Wilcoxon rank-sum tests. Multiple logistic and linear regression were used to assess the association of vaccination with outcomes, controlling for confounders.

RESULTS:

A total of 312 patients underwent SEET, of which 45 patients were vaccinated and 267 patients were unvaccinated. Demographics and cycle characteristics were similar between the groups. LB rate was similar among vaccinated and unvaccinated patients (53.5% vs. 50.2%, $p=.70$). No significant differences were seen in GA at delivery (38.4 ± 2.0 weeks vs. 39.0 ± 1.6 weeks, $p=.46$) or birth weight (3148.8 ± 453.4 grams vs. 3298.4 ± 594.4 grams, $p=.14$) when comparing the vaccinated and unvaccinated groups. Regression analyses adjusted for age, BMI, endometrial thickness, and embryo quality demonstrated no association between vaccination and LB (OR 1.06, 95% CI 0.54-2.05, $p=.87$) or GA at delivery ($B=-0.55\pm 0.36$, $p=.13$). Adjusting for the



variables above in addition to GA revealed no association between vaccination and BW ($B=-86.9\pm 102.6$, $p=.39$).

CONCLUSIONS:

COVID-19 mRNA vaccination prior to pregnancy was not associated with any impact on live birthrate, gestational age at delivery, or birth weight. This study may provide reassurance that COVID-19 vaccination, which has been demonstrated to improve maternal and child health outcomes in pregnant patients, does not have a harmful impact on gestation and neonatal outcomes.

IMPACT STATEMENT:

This study contributes to the growing body of evidence regarding the safety of COVID-19 vaccination in patients who are trying to conceive. Large-scale longitudinal data of patients vaccinated prior to and during pregnancy will provide valuable information regarding vaccination, the most effective means to combat this pandemic.

REFERENCES:

N/A