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neonatal costs were $12,075 and $11,926 higher for singletons and twins, respectively.

CONCLUSIONS: ART-conceived pregnancies are more likely to incur higher maternal and infant hospital costs with longer length of stays.

IMPACT STATEMENT: ART utilization is associated with significantly higher hospital costs at delivery for both mother and infant, presenting an economic challenge to providers and healthcare systems. Future studies are needed to determine reasons for these discrepancies.

O-177 11:15 AM Tuesday, October 19, 2021

MRNA COVID-19 VACCINES DO NOT COMPROMISE IMPLANTATION OF EUPLOID EMBRYOS.

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OBJECTIVE: Concerns have arisen in the lay press regarding a theoretical impact of the COVID-19 vaccine on fertility and early pregnancy. These concerns originate from speculation regarding homology between the COVID-19 spike protein targeted by the vaccine and syncitin-1 protein, which mediates cytotrophoblast and syncytiotrophoblast fusion and placental development.[1] While this theory has been deconstructed by immunology experts, robust clinical studies have yet to examine a relationship between the mRNA COVID-19 vaccines and reproductive potential. This study aims to assess whether COVID-19 vaccination status impacts early pregnancy outcomes in patients undergoing IVF.

MATERIALS AND METHODS: This study included patients who underwent single euploid frozen-thawed embryo transfer (FET) at a single academic center. Vaccinated patients who received the second dose of the Pfizer or Moderna mRNA vaccine two weeks prior to single euploid FET were compared to non-vaccinated patients who underwent single euploid FET during the same time period. Patients who received vaccine doses less than 14 days prior to FET were excluded. Outcomes included pregnancy rate (HCG $\geq$2.5IU/L), clinical pregnancy rate (presence of a gestational sac on ultrasound), ongoing pregnancy rate, and pregnancy loss rate. Statistical analysis was performed using Chi-square, Student's t-test, and multivariable logistic regression to control for confounders.

RESULTS: Of the 65 patients who underwent single euploid FET two weeks after their final vaccine dose, 28 patients received the Pfizer vaccine and 37 received the Moderna vaccine. Fully vaccinated patients underwent FET between February-April 2021. During that time period 328 non-vaccinated patients underwent single euploid FET and comprised the control group. Baseline characteristics including age, oocyte age, BMI, AMH, BAFC, and endometrial thickness were similar between the groups. Vaccinated and non-vaccinated patients had similar pregnancy rates (75.6% vs. 73.0%, p=.72) and clinical pregnancy rates (63.4% vs. 56.9%, p=.43). No significant differences were seen in pregnancy loss rates (11.8% vs. 23.2%, p=.13) or ongoing pregnancy rates (66.7% vs. 56.1%, p=.18) between the groups. Controlling for age, BMI, AMH, and endometrial thickness revealed no association between vaccination and early pregnancy outcomes (Pregnancy: aOR 1.15, 95% CI 0.49-2.75, p=.75; Clinical pregnancy: aOR 1.42, 95% CI 0.65-3.10, p=.38; Ongoing pregnancy: aOR 1.67, 95% CI 0.77-3.61, p=.19; Pregnancy loss: aOR 0.39, 95% CI 0.11-1.37, p=.14).

CONCLUSIONS: Administration of COVID-19 mRNA vaccines does not interfere with early pregnancy in patients who undergo transfer of genetically screened embryos. There is no relationship between immune response to the COVID-19 spike protein and placental development.

IMPACT STATEMENT: Patients who are planning pregnancy can be reassured that COVID-19 vaccination does not adversely impact early pregnancy outcomes. Our findings serve to debunk circulating myths and substantiate that the risk/benefit ratio supports vaccination in women who are trying to conceive.

Reference

1. Male V. Are COVID-19 vaccines safe in pregnancy? Nat Rev Immunol. 2021 Apr;21(4):200-201. https://doi.org/10.1038/s41577-021-00525-y. Erratum in: Nat Rev Immunol. 2021 Mar 12;: PMID: 33658707; PMCID: PMC7927763.

SUPPORT: None

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COST-EFFECTIVENESS ANALYSIS OF THE ACTIVE TREATMENT OR NO TREATMENT (ACT OR NOT) RANDOMIZED CONTROLLED TRIAL OF THE OPTIMAL MANAGEMENT OF PERSISTENT PREGNANCIES OF UNKNOWN LOCATION.

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OBJECTIVE: Pregnancies of unknown location (PUL) account for ~10% of all pregnancies and optimal, cost-conscious management of persistent PULs remains an area of continued controversy.

MATERIALS AND METHODS: We performed a planned, prospective, economic evaluation concurrent with the multicenter ACT or NOT trial of 255 women with abnormally trending human chorionic gonadotropin levels consistent with a nonviable gestation without ultrasonographic evidence of an intrauterine or extrauterine pregnancy, conducted from 7/25/2014 to 6/4/2019. Participants were randomized 1:1:1 to expectant management (EXP), uterine evacuation (UE) with methotrexate if indicated, or two doses of methotrexate (MTX), stratified by site. Analysis was performed based on actual treatment received given high rate of crossover. A within-trial analysis was performed from the healthcare sector perspective with a 6-week time horizon. Costs were estimated from actual healthcare utilization, in 2018 USD. Health care unit costs were assigned from national Medicare reimbursement rates or published prices. UE occurred primarily by manual vacuum aspiration in clinic; dilation and evacuation was assumed evenly performed in clinic and a surgical center. Salpingectomies were laparoscopic outpatient procedures. Effectiveness was measured in quality-adjusted life-year (QALY) and rate of salpingectomy. The primary outcome was incremental cost-effectiveness ratio (ICER) of cost/QALY gained; cost/1% reduction in salpingectomy was a secondary outcome.

RESULTS: MTX had the lowest mean cost, of $875, followed by EXP $1085, and UE $1902 (p=0.001). EXP had the highest QALY of all treatment arms (0.0784) followed by UE (0.0769) and MTX (0.0725) (p=0.13). There was a higher rate of salpingectomy in the EXP arm compared to MTX (9.4% vs 1.2%; p=0.02). EXP was cost effective compared to MTX with an ICER of $35,610/QALY gained (95% CI, -$425,247.40 to $501,594.30). EXP dominated UE. Cost-effectiveness acceptability curve analysis demonstrated EXP was cost-effective 89% of the time compared to MTX at the generally accepted maximum willingness-to-pay threshold of $150,000/QALY gained. The incremental cost per 1% reduction in salpingectomy rate was $26 favoring MTX over EXP and $633 favoring UE over EXP.

	Mean Cost (2018 USD)	Mean QALY	ICER (cost/QALY)	Rate of Salpingectomy (n)	Cost per 1% Reduction in Salpingectomy Rate
MTX	$875	0.0725	-	1.2% (1)	-
EXP	$1,085	0.0784	$35,610	9.4% (10)	-$26
UE	$1,902	0.0769	-$544,653	8.2% (5)	$633