SELECTED ORAL COMMUNICATIONS
SESSION 45: COVID-19 AND IMPLANTATION
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O-138 Covid-19 vaccine does not affect sustained implantation rates after single euploid embryo transfer, a retrospective study with 4868 cases.

N. Garrido Puchalt[1], P. Brandao[2], M. Meseguer[3], R. José[4], A. Pellicer[5], J.A. García-Velasco[6]

[1]*IVI Foundation- Instituto de Investigacion Sanitaria La Fe, Innovation, Valencia, Spain*
[2]*IVIRMA Lisbon, Reproductive endocrinology and infertility, Lisbon, Portugal*
[3]*IVIRMA Valencia, Clinical Embryology Laboratory, Valencia, Spain*
[4]*IVIRMA Valencia, Reproductive Endocrinology and Infertility, Valencia, Spain*
[5]*IVIRMA Rome, Reproductive endocrinology and infertility, Rome, Italy*
[6]*IVIRMA Madrid, Reproductive endocrinology and infertility, Madrid, Spain*

Study question: Is sustained implantation rate (SIR) of covid-19 vaccinated women diminished in assisted reproduction treatments due to endometrial receptivity harm?

Summary answer: SIR of euploid embryos remains constant regardless vaccination and doses applied, but impact of interval last dose-embryo transfer needs to be further evaluated.

What is known already: Little is known about the effects of both covid infection and vaccines on endometrial receptivity of women attempting motherhood.

There is a generalized concern about potential secondary effects of covid vaccine on many health areas, and assisted reproduction is not an exception. Then, it is mandatory on the current epidemic context to evaluate if either infection or its preventive treatment may interfere reproductive physiology of infertile patients.

ART offers a robust model to study this problem by controlling oocyte and embryo quality with the use of PGT-A, then enabling the study of endometrial independent contribution to reproductive success.

Study design, size, duration: Retrospective study analyzing two cohorts, historical cohort of PGT-A cases using own oocytes one year pre-pandemia, and post vaccination initiation from women already having received one or two doses.

Patients undergoing single embryo transfers (ET) after PGT-A were included, to be able to discern purely endometrial factors of sustained implantation. Means and proportions with their corresponding 95%CI (within brackets) were calculated, and crude/adjusted odds ratios calculated for the main outcomes, SIR and clinical pregnancy rate (CPR)

Participants/materials, setting, methods: A total of 4868 ET were included on this study, 3272 for the control, non vaccinated group, vs 890 from women already vaccinated with at last one dose at the time of ET.

The main outcomes were CPR per embryo transfer (presence of a sac by ultrasonography on week 7^{th}), and SIR (fetal heartbeat at week 12^{th}). Crude and adjusted odds ratio were calculated, using logistic regression models to control for potentially confounding variables.

Main results and the role of chance: Mean age was 38.3 years 95%CI(38.2-38.4), BMI, 23.2kg/m2 95%CI(23.1 23.4), fresh oocytes on 80%, mixed 16.4% and vitrified on 3.6% of cases. Donor sperm used on 12.8% of treatments, and testicular retrieved sperm on 2.5% of them. Day of embryo transfer was D5 on 71.3% and D6 on 28.6% cases.

CPR per ET was 70.6% 95%CI(69.3-71.9) in the control group and 70.4%95%CI(67.4-73.4) on vaccinated, OR 0.994 95%CI(0.849-1.163), and after adjustment by patient's age, oocyte age, source of sperm, donor sperm use, day of ET, use of vitrified oocytes and BMI, AdjOR 1.039 95%CI(0.876-1.233), while SIR in the controls was 64.3% 95%CI(62.7-66.0) vs. 62.6% 95%CI(58.8-66.4) on vaccinated, with OR 0.929 95%CI(0.777-1.110) and AdjOR 0.981 95%CI(0.807-1.192), $p > 0.05$.

Those patients having received only one dose or two doses by the time of ET, showed comparable results, on both CPR and SIR.

Concerning data categorized per time quartiles (from vaccine to ET), while CPR was comparable, SIR, on the first quartile (Q1) was 66.5%, while Q2 was 68.0%, Q3 66.3%, and Q4 50.4%, and using Q1 as reference, ORQ2-Q1 1.073 95%CI(0.680-1.693), ORQ3-Q1 0.869 95%CI(0.545-1.385) and OR Q4-Q1 0.512 95%CI(0.321-0.818), $p = 0.009$ while after adjustment AdjORQ2-Q1 0.965 95%CI(0.585-1.594), AdjORQ3-Q1 0.834 95%CI(0.492-1.413) and AdjORQ4-Q1 0.533 95%CI(0.316-0.899), $p = 0.018$.

Limitations, reasons for caution: This is a retrospective study, and although controlled statistically, possible biases due to the nature of the work remain possible, and a cause-effect link cannot be purely drawn from it. Further prospective studies on the potential effect of covid vaccines on reproductive outcomes are still needed.

Wider implications of the findings: Our results send a message of reassurance to patients in the process of assisted reproductive treatment regarding the potential negative impact of the vaccine on endometrial receptivity and reproductive outcomes. Aiming motherhood is no reason for delaying vaccination against covid-19.

Trial registration number: Not applicable