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P-622  Clinical results in hormone replacement versus natural cycle protocols of endometrial preparation for frozen embryo transfer

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Study question: What is the optimal endometrial preparation protocol for a frozen embryo transfer (FET) with regards to clinical results?

Summary answer: A similar pregnancy and miscarriage rate is expected with either protocol of endometrial preparation for frozen embryo transfer.

What is known already: An optimal endometrial preparation for FET is of paramount importance to maximize ART success. However, the optimal endometrial preparation protocol for FET warrants more research and is pending to be determined. In addition, in studies that reviewed the optimal endometrial preparation protocols, few of them analyzed the stage and the number of embryos or other factors such PGT-A.

Study design, size, duration: Multicenter, retrospective cohort evaluation of FET cycles in a private center (August 2020-March 2021). The type of endometrial preparation regime (hormone replacement vs natural cycle) was analyzed according to the following variables: origin of the oocyte (own / donated), single-embryo-transfer, PGT-A, day of embryo development and progesterone values on the day or the day before the embryo transfer procedure. The core outcome variables were pregnancy rate (positive β-hCG), clinical pregnancy and miscarriage rate.

Participants/materials, setting, methods: 965 patients coming from autologous or heterologous cycles who performed FET. They were assigned to one group or another depending on the endometrial preparation regime used, either hormone replacement cycle (761) or natural cycle (204).

The normality of the distribution of the variables was assessed using the Shapiro-Wilk test. The statistical analysis was carried out by T-Student (quantitative variables) or Chi-squared test (qualitative variables).

Main results and the role of chance: Statistically significant differences were found between the use of donated oocyte on natural cycle (41.7%) and hormone replacement cycle (55.7%) (p = 0.001). Furthermore, day 5 embryo transfer differed significantly between natural cycle (78.4%) and hormone replacement cycle (86.3%) (p = 0.029), as well as day 6 embryo transfer between natural cycle (21.1%) and hormone replacement cycle (12.5%) (p = 0.029). Likewise, mean progesterone value on the day of the embryo transfer was significantly higher in natural cycle (24.4 ng/mL) than in hormone replacement cycle (18.55 ng/mL) (p = 0.00).

No statistically significant differences were found regarding pregnancy, clinical pregnancy and miscarriage rates between natural cycle (41.7, 31.9 and 23.1%) and hormone replacement cycle (44.7, 33.4 and 22.4%) (p = 0.48, 0.74 and 1.00), respectively. No significant differences were observed between the endometrial preparation regime regarding single-embryo-transfer and PGT-A (p > 0.05).

Limitations, reasons for caution: The inherent limitations of a retrospective study. Different routes of administration and doses of hormones were employed in the hormone replacement cycle. Similarly, natural cycles included: “true” and modified (hCG-triggered) cycles. Obstetric / perinatal outcomes were not evaluated.

Wider implications of the findings: Our results suggest no particular benefit of one protocol over the other in terms of clinical results. Nonetheless, the higher progesterone values detected in natural cycles might be clinically relevant in view of the positive correlation between P4 levels on the day of frozen-thawed embryo transfer (FET) with pregnancy outcomes.

Trial registration number: Not Applicable