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P-354 Major factors influencing the clinical pregnancy rate in the first frozen blastocyst transfer: a retrospective, single center cohort study

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Study question: The effect of clinical and embryological characteristics on clinical pregnancy is controversial. This study investigated factors contributing to pregnancy in the first frozen blastocysts transfer.

Summary answer: The number and the good quality of the blastocysts transferred, assisted hatching significantly influence clinical pregnancy rate in the first transfer.

What is known already: Studies have shown that blastocyst-stage transfer was more favorable than cleavage-stage transfer.

The effectiveness of FET is also affected by clinical factors such as female age, body mass index (BMI), infertility duration, cause of infertility, endometrial preparation regimen. Old females are more likely to have unfavorable IVF results. On the other hand, although age primarily affects the embryo formation, it does not decide the success of FET.

Various embryological factors, including the number of blastocyst transferred, top quality embryo and cleavage-stage embryo transfer or blastocyst transfer for FET were the major factors contributing to live birth rate.

Study design, size, duration:
Study design: A retrospective cohort study
Size: 596 cycles
Duration: From January 2017 to December 2019

Participants/materials, setting, methods: We included all cycles that ultimately underwent the first frozen blastocyst transfer procedure. Resulting in 596 cycles. Patients were treated with the GnRH antagonist protocol. All transfers were performed on an outpatient basis using a soft embryo transfer. Embryo quality was assessed on D5 according to the Gardner classification.

Logistic regression was used to calculate OR and its 95% CI in univariate and multivariate analysis, statistical significance of at least 0.100 in univariate analysis.

Main results and the role of chance: Among 596 patients with 596 frozen blastocyst transfers, clinical pregnancy and live birth rate was 43.3% (258/596) and 31.8% (190/596), respectively. The multiple pregnancy rate was 8.9%. There was no significant difference in patients’ characteristics between those with and without clinical pregnancy.

Patients with two or more blastocysts transferred for the first transfer and those with at least one good blastocyst had a higher likelihood of having clinical pregnancy with odds ratios ranging from 1.69 (95% CI 1.22 – 2.34) to 1.82 (95% CI 1.30 – 2.55). Moreover, patients who underwent assisted hatching technique had a higher odds of having clinical pregnancy (OR = 1.40, 95% CI 1.00 – 1.97). This significance pattern remained unchanged in multivariate analysis with and without the presence of other covariates such as age, infertility duration, type of infertility and endometrial thickness.

The chemical pregnancy rate of two or more blastocysts transferred was 54.4% and 44.5%, respectively (OR = 1.49, 95% CI 1.08-2.06). Besides, the clinical pregnancy rate was 50.0% and 37.7%, respectively (OR = 1.65, 95% CI 1.19-2.29). Finally, the live birth rate of two or more blastocysts transfer was 36.7% compared to only 27.9% of that of one blastocyst transferred (OR = 1.50, 95% CI 1.06-2.11).

Limitations, reasons for caution: This study was a non-randomized, retrospective design, with a limited sample size and at a single center. In some subgroup analyses was relatively small which may limit the interpretation of the power of the study. Our study only included Asian populations, mostly Vietnamese.

Wider implications of the findings: In general, consideration should be given to the transfer of blastocyst stage embryos. Limiting the number of transferred embryos can reduce the multiple pregnancy rate.