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**TIMING OF MONITORING VISITS PRIOR TO INITIATION OF
PROGESTERONE SUPPLEMENTATION IN FROZEN EMBRYO TRANSFER CYCLES**

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OBJECTIVE:

Synthetic endometrial preparation during single euploid embryo transfer (SEET) cycles utilizes sequential estrogen and progesterone (P4) that mimics the natural window of implantation. A concern for synthetic cycles is the possibility of breakthrough ovulation and the inability to suppress follicular growth. Patients undergo close monitoring of the P4 levels to ensure optimal synchronization of endometrial lining and embryo transfer. However, little research has evaluated the duration between P4 level check and initiation of exogenous P4 in frozen embryo transfer (FET) cycles. This study aimed to discern whether the time between the P4 check and the initiation of exogenous P4 affects embryo transfer outcomes in synthetic preparation cycles.

MATERIALS AND METHODS:

This study included patients who underwent autologous SEET cycles at a single academic center from 2016 to February 2022. PGT-A was performed using next generation sequencing. Synthetic endometrial preparation cycles used estradiol to thicken the endometrium and suppress follicular growth. The number of days between P4 check and initiation of P4 supplementation was calculated and grouped by percentiles: Group 1: 0-1 days prior, Group 2: 2 days prior, Group 3: 3-4 days prior, Group 4: ≥ 5 days prior. Demographic and cycle characteristics were collected. The primary outcome was ongoing pregnancy rate. Secondary outcomes included chemical pregnancy rate and implantation rate. Comparative statistics were performed with ANOVA, Kruskal-Wallis, and chi-square. Data was also analyzed using a multivariate regression analysis fitted with a general estimate equation model. A sample size of 356 patients per group was calculated in order to have 80% power to detect a 10% difference in ongoing pregnancy rate ($\alpha=0.05$).

RESULTS:



A total of 9137 cycles were identified, 2506 cycles in Group 1, 2684 cycles in Group 2, 2664 cycles in Group 3, and 1283 cycles in Group 4. After adjusting for oocyte age, BMI, endometrial thickness, embryo morphologic quality, and type of P4, there was no difference in ongoing pregnancy rates. Cycles in Group 1 had the same odds of ongoing pregnancy as cycles in Group 2 (aOR 0.96, 95% CI 0.86, 1.08), Group 3 (aOR 1.20, 95% CI 0.98, 1.23), and Group 4 (aOR 1.04, 95% CI 0.90, 1.20). After adjusting for the same variables, there was no significant difference in chemical pregnancy rate or implantation rate among cohorts.

CONCLUSIONS:

The day of P4 check prior to starting exogenous P4 during a synthetic FET cycle does not affect pregnancy outcomes. Patients are closely monitored during their SEET cycles by bloodwork and ultrasound and it is unlikely that breakthrough ovulation would be missed over the course of the week in which P4 level is checked. These results are reassuring and suggest that estradiol supplementation is highly effective at suppressing the ovaries, which allows for clinical flexibility in monitoring prior to embryo transfer.

IMPACT STATEMENT:

Timing of monitoring visits prior to initiation of P4 supplementation does not affect chemical pregnancy rates, implantation rates or ongoing pregnancy rates.

REFERENCES:

N/A