SIGNIFICANCE OF ENDOMETRIAL LINING DECREASE AFTER PROGESTERONE START IN SYNTHETIC FROZEN EMBRYO TRANSFER (FET) CYCLES

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OBJECTIVE: Adequate preparation of the endometrium is critical for successful FET. While a thin endometrium prior to progesterone start is known to negatively affect pregnancy rates, the clinical significance of a change in the endometrial lining thickness in the interval between progesterone start and FET is unknown. We tested the hypothesis that a decrease in endometrial lining thickness by ≥ 5mm after progesterone start was associated with lower ongoing pregnancy rate (OPR) in FET cycles.
DESIGN: Retrospective cohort study
MATERIALS AND METHODS: All first synthetic FET cycles for women < age 35 using autologous oocytes and euploid blastocyst transfers performed at our center from 1/2012 to 3/2017 were reviewed. Cycles were dichotomized around the 25th percentile for change in endometrial thickness from progesterone start to the day prior to transfer (≥ 5mm decrease vs. < 5mm decrease). Differences between groups were assessed with Chi-square and Wilcoxon Rank-Sum test. Multivariable logistic regression was performed to control for confounders. There was 80% power to detect a 7.5% difference in OPR with alpha=0.05.
RESULTS: 1313 patients met inclusion criteria. Patients with ≥ 5mm decrease in endometrial thickness were more likely to use laser acupuncture at transfer and had a significantly thinner endometrium on progesterone (Table). There were no significant differences in other variables (Table). When controlling for age, BMI and use of acupuncture at transfer, there was no difference in OPR per transfer between groups (adjusted OR 0.95, 95%CI 0.71-1.28; p=0.7).
CONCLUSIONS: A decrease in the endometrial lining thickness by ≥ 5mm between the day of progesterone start and the day prior to embryo transfer does not appear to impact OPR. Given concerns voiced by patients regarding the decrease in their lining thickness on the day prior to transfer, the findings of this study are of practical clinical importance for patient counseling.

Values represent mean ± SD or n (%)			
	<5mm Decrease (n=1003)	Decrease ≥ 5mm (n=310)	P-value
BMI (kg/m^2)	24.8 ± 5.1	24.9 ± 5.0	0.4
Mean Age	30.9	30.9	0.4
Single Embryo Transfer	786 (78.3)	244 (78.7)	0.9
Endometrial Thickness (mm) on Estradiol	10.0 ± 1.9	10.0 ± 1.9	0.9
Endometrial Thickness (mm) on Progesterone	10.0 ± 2.0	8.6 ± 1.7	<0.001
Laser Acupuncture	622 (62.0)	221 (71.3)	0.003
Clinical Pregnancy Rate	n (79.2)	n (75.8)	0.19
Ongoing Pregnancy rate	n (74.5)	n (72.2)	0.4
Implantation Rate	n (82.0)	n (79.0)	0.2
Loss rate	n (17.9)	n (19.5)	0.5