DOES ENDOMETRIAL FLUID IMPACT OUTCOMES IN SINGLE EUPLOID FROZEN EMBRYO TRANSFERS?

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Background
With the rise of pre-implantation testing for aneuploidy (PGT-A), examining outcomes following the transfer of euploid embryos allows further insights into isolating the contribution of embryo vs. uterine environment. The presence of endometrial fluid during a frozen embryo transfer (FET) is a common clinical conundrum. Data is inconclusive regarding the impact of endometrial fluid seen during ultrasound (US) examination prior to FET.

Objective
To evaluate the impact of EF observed during US monitoring of single, euploid FET cycles.

Materials and Methods
A retrospective cohort data analysis was performed at a single, academically affiliated infertility center in the U.S. from January 2014 to December 2022. Inclusion criteria comprised patients who were attempting their first in-vitro fertilization cycle, had PGT-A performed by trophectoderm biopsy during that first cycle, and had at least one euploid embryo and were undergoing their first FET. Medical records and US images were reviewed to identify the presence of endometrial fluid prior to transfer. Patients were subdivided into three groups: no EF present (controls), EF present on US > 7 days prior to transfer (fluid resolved), and EF present on US $\leq$ 7 days prior to transfer. Pregnancy outcomes were compared in each of these groups, the primary outcome being live birth rate (LBR) per embryo transfer. A logistic regression analysis was performed adjusting for baseline female characteristics (age, BMI, gravidity, parity, reason for infertility) and cycle characteristics (method of fertilization, natural vs programmed FET, endometrial thickness achieved during FET).

Results
A total of 530 cycles met inclusion criteria. Of these, 358 documented no endometrial fluid on US, 131 documented EF on US > 7 days prior to transfer, and 41 documented EF on US $\leq$ 7 days prior to transfer. Table 1 shows LBR between each of these groups. When EF was present on US $\leq$ 7 days prior to transfer, the LBR was decreased when compared to the no EF present group, but this did not reach statistical significance (50.56% vs 39.02%, adjusted OR 0.61 (0.31, 1.23)). Pregnancy outcomes were not significantly different when EF was present on US > 7 days.

Table 1. Live Birth Rate Per FET Stratified by Presence of EF (N%)

		N (%)	Adjusted OR (95% CI)
Live Birth	No EF Present	50.6%	
	EF Present (> 7 days prior to ET)	48.0%	0.74 (0.44, 1.27)
	EF Fluid Present (≤ 7 days prior to ET)	39.0%	0.61 (0.31, 1.23)

Conclusion

Success of FETs of a single euploid embryo was unaffected when EF resolved >7 days prior to FET. Although it did not reach statistical significance, there was a trend toward a lower LBR when fluid was present on US <7 days prior to ET. Further study needs to be done to evaluate this trend, but caution should be exercised in cases where patients have limited euploid embryos available for transfer.

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