

Does Endometrial Fluid Impact Outcomes in Single, Euploid Frozen Embryo Transfers?

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Background

- Frozen embryo transfer (FET) of euploid embryos helps to isolate the contribution of embryo vs. uterine environment during implantation¹
- Endometrial fluid (EF) occurs in 3-8% of cycles, and is generally associated with decreased implantation success²
- Persistent EF may lead to cycle cancellation which can have physical, emotional, and financial implications

Objective

- To evaluate the impact of EF during single, euploid FET cycles and to evaluate live birth rate (LBR) of subsequent cycles following cancellation for EF

Methods

- Retrospective cohort study
- Sample: Patient's first euploid FET from first autologous oocyte retrieval at a university-affiliated infertility practice from 2014-2022
- Primary outcome was LBR per embryo transfer
- Secondary analysis of LBR of first subsequent FET after cycle cancellation due to EF

Results

- 4308 single, euploid FETs met inclusion criteria
- Table 1 demonstrates baseline patient and cycle characteristics
- More patients had a history of cesarean section in EF groups and there was a greater proportion of programmed cycles in the persistent EF group
- The LBR was significantly lower by 20% in the group that had persistent EF on day of progesterone start (Table 2)
- No significant difference in LBR was seen when EF resolved prior to progesterone start (Table 2)
- The LBR for subsequent cycles after cycle cancellation was 39.7% (similar to persistent EF group)

Table 1. Patient and cycle characteristics of first single, euploid FET stratified by EF group

	No EF present (N = 4140)	EF resolved prior to prog start (N = 108)	EF persistent at prog start (N = 60)	P-value
Female Age	36	35.3	35.3	0.04
Female BMI	26.1	24.4	25.3	0.01
Gravidity (median)	0	1	1	<0.001
Parity (median)	0	0	1	0.02
Reason for infertility				
Endometriosis	3.1%	1.9%	5.0%	0.52
Tubal Disease	6.5%	6.5%	8.3%	0.92
Ovulation Disorder	24.6%	25.9%	33.3%	0.3
RPL	9.4%	18.5%	8.3%	0.01
Uterine Factor	2.3%	2.8%	0%	0.5
Method of fertilization				
Conventional Insemination	55.5%	59.3%	61.7%	0.5
ICSI	44.5%	40.7%	38.3%	
History of C-section	9.2%	17.6%	21.7%	<0.001
Endometrial Thickness Achieved	9.4	8.9	8.5	<0.001
Programmed FET	49.2%	23.2%	68.3%	<0.001
Natural FET	50.8%	76.8%	31.7%	<0.001

Table 2. Pregnancy outcomes of first single, euploid FET stratified by EF group

		N (%)	Adjusted OR (95% CI)
Live Birth	No EF Present (reference)	58.5%	
	EF resolved prior to prog start	49.1%	0.69 (0.47, 1.04)
	EF persistent at prog start	38.3%	0.48 (0.27, 0.84)
Clinical Intrauterine Gestation	No EF Present (reference)	65.3%	
	EF resolved prior to prog start	58.3%	0.80 (0.53, 1.21)
	EF persistent at prog start	46.7%	0.48 (0.27, 0.86)
Miscarriage	No EF Present (reference)	5.9%	
	EF resolved prior to prog start	4.6%	0.92 (0.36, 2.31)
	EF persistent at prog start	8.3%	1.42 (0.55, 3.7)

Conclusions

- Success of single, euploid FETs was unaffected when EF resolved prior to progesterone start
- The LBR was 20% lower when EF was persistent on day of progesterone start
- If EF is persistent, cycle cancellation may not confer an improved LBR in a subsequent cycle indicating EF may be related to innate alteration in uterine environment

References

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