MODIFIED-NATURAL CYCLES (mNC) ARE REIGNING SUPREME: A 5-YEAR RETROSPECTIVE ANALYSIS OF LIVE BIRTHS FOLLOWING SINGLE, EUPLOID, FROZEN EMBRYO TRANSFER (FET) STRATIFIED BY ENDOMETRIAL PREPARATION METHOD

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INTRODUCTION

The number of FETs has grown exponentially within recent years.[1] The choice of endometrial preparation method varies based on several factors including a patient's ovulatory status, preference, clinic scheduling convenience and anecdotal evidence. For patients without a clear indication for a specific protocol, it remains uncertain which method of endometrial preparation leads to the highest live birth rate as current data is conflicting.[2-3]

OBJECTIVE

To compare live birth outcomes between three different FET endometrial preparation methods: programmed (E2/P4 supplementation), mNC (use of hCG trigger) & stimulated (oral ovulation induction agent or injectable gonadotropins)

- Primary outcome: live birth (>20 weeks GA)
- Secondary outcomes: biochemical (+ bhCG), clinical (ultrasound visualization of pregnancy), and ongoing pregnancy (8-9 GA with FH), pregnancy loss, delivery mode, birth weight and gestational age

METHODS

- Multisite, retrospective, cohort study from January 2019 – December 2023

Inclusion Criteria	Exclusion Criteria
1st autologous FET using PGT-A	PGT-M or PGT-SR
Single blastocyst transfer	Segmental aneuploid or mosaic embryo transfer
Whole chromosome negative PGT-A result	>1 thaw or trophectoderm biopsy procedure

- Patients were grouped based on endometrial preparation method
- Embryo grades categorized via the SART classification system
- Multivariate logistic regression was used to adjust for confounders (oocyte age, BMI, day of blastulation, SART embryo grade class*) ANOVA and Bonferroni correction for post hoc analyses were used
- P-value < 0.05 was considered statistically significant

RESULTS

- No differences in oocyte age (35.08 ± 4.00, CI: 35.00-35.15), FSH (8.07 ± 3.04, CI: 8.01-8.13), total number of blastocysts (6.19 ± 4.79, CI: 6.10-6.28), day of blastulation, or endometrial thickness (9.28 ± 1.80, CI: 9.24-9.31) prior to progesterone initiation between programmed and mNC
- mNC and stimulated FETs had a lower mean BMI (26.84 ± 5.84, CI: 26.73-26.95) compared to programmed and stimulated FETs were slightly younger, had lower FSH levels, more blastocysts, and thinner linings

RESULTS

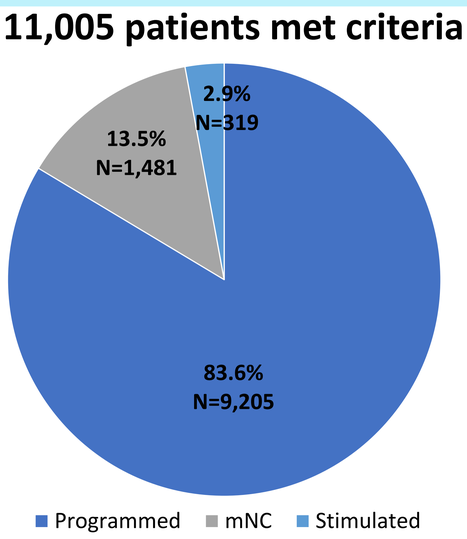

Figure 1: Proportion of Patients Stratified by Endometrial Preparation Type

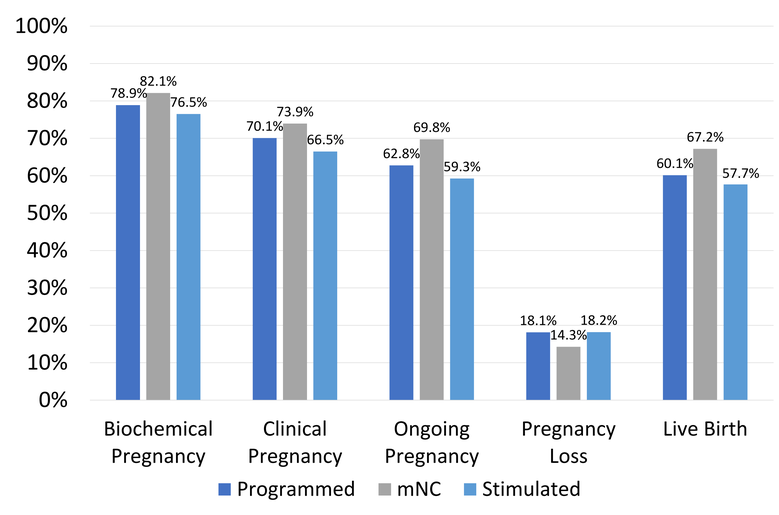

Figure 2: Pregnancy Outcomes per Endometrial Preparation Type

Outcome	Group Compared to Programmed FET	Adjusted Odds Ratio*	95% Confidence Interval	P-Value	Direction and Likelihood of Event
Biochemical Pregnancy	mNC	1.19	1.03 – 1.38	0.02	+ 19.4%
	Stimulated	0.86	0.66 – 1.12	0.26	N/A
Clinical Pregnancy	mNC	1.28	1.13 – 1.45	< 0.001	+ 28.1%
	Stimulated	0.86	0.68 – 1.08	0.19	N/A
Ongoing Pregnancy	mNC	1.34	1.19 – 1.52	< 0.001	+ 34.3%
	Stimulated	0.87	0.69 – 1.09	0.23	N/A
Pregnancy Loss	mNC	0.72	0.61 – 0.84	< 0.001	- 28.3%
	Stimulated	1.03	0.76 – 1.39	0.85	N/A
Live Birth	mNC	1.33	1.18 – 1.49	< 0.001	+ 32.6%
	Stimulated	0.91	0.72 – 1.15	0.42	N/A

Table 1: Adjusted Pregnancy Outcomes Compared to Programmed FET

Outcome	Group		
Outcome Mean (SD) (95% CI)	**Programmed**	**mNC**	**Stimulated**
Birth Weight (grams)	3321.5 (576.2) (3306.3-3336.7)	3286.5 (576.4) (3250.7-3322.4)	3185.4 (628.6) (3093.7-3277.1)
Gestational Age (weeks)	39.1 (2.05) (39.1-39.2)	39.2 (1.8) (39.1-39.3)	38.8 (2.4) (38.4-39.2)
Cesarean N (proportion), (95% CI)	2801 (51.5%) (50.1-52.8)	424 (43.4%) (40.3-46.6)	62 (34.6%) (27.7-42.1)
Vaginal N (proportion), (95% CI)	2640 (48.5%) (47.2-49.9)	552 (56.6%) (53.4-59.7)	117 (65.4%) (57.9-72.3)

Table 2: Descriptive Neonatal and Delivery Outcomes

CONCLUSIONS

- mNC cycles were associated with a 32.6% increase in the likelihood of livebirth and a 28.3% decrease in the likelihood of pregnancy loss compared to programmed cycles
- Neonatal outcomes revealed similar birth weights and gestational age between programmed and mNC FETs
- mNC FETs were less likely to result in cesarean section (aOR 0.77, CI: 0.67-0.89, p<0.001)

REFERENCES

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