

PREGNANCY OUTCOMES FROM EXCELLENT-GRADE SINGLE EUPLOID FROZEN EMBRYO TRANSFER (FET) CYCLES: COMPARISONS OF NATURAL (NAT) VS PROGRAMMED (PRG) CYCLES ACROSS AGE GROUPS



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BACKGROUND

- **NAT FETs** are often preferred for having a more physiologic endometrial preparation and their association with **lower rates of adverse obstetric outcomes**, including hypertensive disorders of pregnancy, postpartum hemorrhage and cesarean delivery¹
- In contrast, **PRG FETs** are often favored for scheduling convenience, less frequent monitoring and suitability for anovulatory or menopausal patients
- **Published data comparing pregnancy outcomes from NAT vs PRG FET cycles remain limited**

OBJECTIVE

- **To compare NAT vs PRG FET cycle outcomes across age groups**

MATERIALS AND METHODS

Study Design

- **Retrospective cohort study** (NYU IRB# 13-00389) of all excellent-grade single euploid FET cycles at our academic fertility center from 1/2015 to 12/2024
 - Only the 1st FET attempt per patient with a normal uterine cavity evaluation was included
 - “Excellent” embryo grade was defined as a >65% predicted live birth rate based on our lab’s data
 - NAT FETs consisted of endogenous progesterone from the corpus luteum vs PRG FETs required exogenous progesterone administration

Outcomes

- **The rate of live birth and ongoing pregnancy >12 weeks gestational age (LB+OPR) and spontaneous abortion (SABR) per FET cycle by protocol type and age at transfer**

Statistical Analysis

- The Mann-Whitney U, Fisher’s exact, and logistic regression tests were performed with a p-value less than 0.05 considered significant

FIGURE AND TABLE

Figure 1: LB+OPR and SABR per protocol for all ages combined

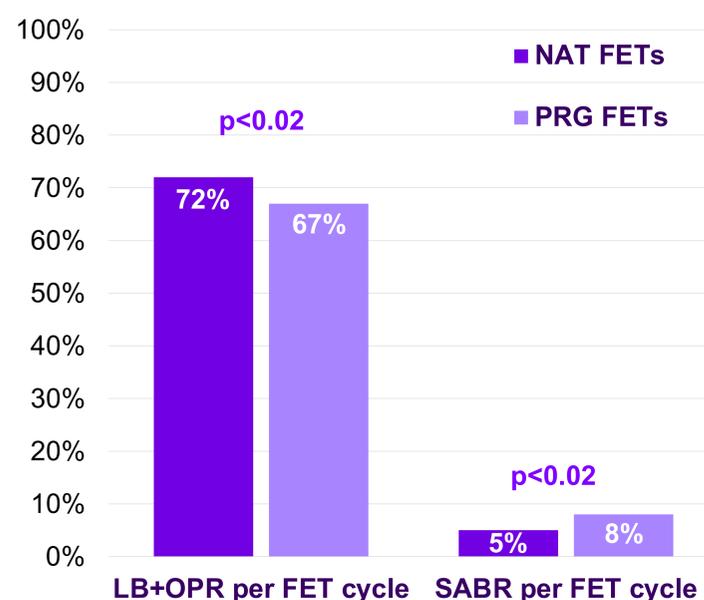


Table 1: LB+OPR and SABR per protocol by age groups

	LB+OPR per FET cycle		SABR per FET cycle	
	NAT	PRG	NAT	PRG
<35y (n=1178)	73% (122/167)	68% (692/1011)	2%* (3/167)	8%* (79/1011)
35-37y (n=992)	74% (128/174)	67% (550/818)	5% (9/174)	7% (60/818)
38-40y (n=860)	70% (118/168)	64% (444/692)	7% (12/168)	7% (48/692)
41-42y (n=363)	67% (36/54)	66% (205/309)	4% (2/54)	8% (26/309)
>42y (n=143)	71% (17/24)	65% (77/119)	8% (2/24)	7% (8/119)

*significantly different (p<0.01)

RESULTS

- A total of **3536 FET cycles** were included: **17% NAT (n=587) vs 83% PRG (n=2949)**. Median age at FET was similar between protocols (NAT 36 vs PRG 37 years, p=0.42)
- **Outcomes from all cycles combined included:** 68% (n=2389) LB+OPR, 7% (n=249) SABR, 7% (n=237) biochemical pregnancy rate, 17% (n=614) negative pregnancy rate and <1.5% consisting of 28 terminations of pregnancy (TOP), 13 ectopic pregnancies, and 6 stillbirths
- **Figure 1** shows the LB+OPR and SABR per protocol for all ages combined
 - **LB+OPR was statistically higher and SABR was statistically lower in the NAT FET group**
- **Table 1** summarizes the LB+OPR and SABR per protocol by age groups
 - **SABR was significantly lower in NAT FETs only in patients younger than 35 years old**
 - Rates of TOP, ectopic, stillbirth, biochemical, and negative results were similar between protocols across all age groups, except for higher biochemical rates (NAT 17% vs PRG 3%, p<0.03) and lower negative rates (NAT 4% vs PRG 23%, p<0.05) in NAT FETs when older than 42 years old
- **Logistic regression showed that LB+OPR decreased with age** (B=-0.02, p<0.02) **and PRG FET** (B=-0.242, p<0.02), **while SABR was similar regardless of age** (B=0.01, p=0.70) **and higher with PRG FET** (B=0.48, p<0.02)

CONCLUSIONS

- **There is an overall trend toward higher LB+OPR and lower SABR in NAT FETs compared to PRG FETs, though not statistically significant when stratified by age at transfer**
- Larger studies are needed to confirm if this trend is significant and further clarify the role of patient age in determining optimal FET protocol selection

REFERENCE

- 1) Asserhøj LL, Spangmose AL, Aaris Henningsen AK, Clausen TD, Ziebe S, Jensen RB, Pinborg A. Adverse obstetric and perinatal outcomes in 1,136 singleton pregnancies conceived after programmed frozen embryo transfer (FET) compared with natural cycle FET. Fertil Steril. 2021 Apr;115(4):947-956.

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