

DO OUTCOMES AFTER EUPLOID EMBRYO TRANSFER DIFFER BETWEEN PATIENTS WITH AND WITHOUT RECURRENT PREGNANCY LOSS?

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Background

Determining the optimal treatment strategy for couples with a history of recurrent pregnancy loss (RPL) who wish to conceive again can be challenging. Some patients with RPL consider in vitro fertilization (IVF) paired with preimplantation genetic testing for aneuploidy (PGT-A) as an option, given this theoretically prevents aneuploid causes of miscarriage. However, data on pregnancy outcomes after euploid embryo transfer in patients with RPL are limited.

Objective

The objective of this study was to compare outcomes after frozen embryo transfer (FET) of a euploid embryo in patients with and without RPL.

Materials and Methods

We conducted a retrospective cohort study examining patients with a history of RPL who underwent IVF with PGT-A from 1/2022-12/2023 at Northwestern University. RPL was defined as two or more failed pregnancies. We identified control patients without RPL undergoing IVF/PGT-A for other indications as comparison, matching on age, AMH, and BMI. Outcomes after the first FET in patients with and without RPL were compared. Some patients did not conceive, and those with ectopic pregnancy, a termination, or lost to follow-up had an outcome categorized as "other." Fixed effect multinomial models of birth outcomes were conducted.

Results

There were 114 patients with RPL who underwent euploid FET (mean age 36.5, mean BMI 26.4). The majority (60.5%) had a modified natural FET, with some patients using letrozole for ovulation induction. Most embryos (71.9%) were biopsied and frozen on day 5, and most embryos had the highest grading for both the inner cell mass (85.1%) and trophoblast (66.7%). There were 107 patients without RPL who underwent euploid FET (mean age 36.1, mean BMI 26.3). The majority (62.6%) had a modified natural FET, with or without letrozole. Most embryos (75.7%) were biopsied and frozen on day 5, and most embryos had the highest grading for both the inner cell mass (80.4%) and trophoblast (64.5%).

In those with RPL, live birth rate (LBR) was 56.1%, biochemical loss rate was 10.5%, and clinical miscarriage rate was 11.4%. Amongst those without RPL, LBR was 57.9%, biochemical loss rate was 10.3%, and clinical miscarriage rate was 8.4%. Pregnancy outcomes were also broken down by age categories in those with and without RPL (Table 1).

Fixed effect multinomial analysis revealed no significant effect of RPL on outcomes after FET. Although the odds of an individual with RPL having a clinical miscarriage relative to having a

successful live birth was 1.38 times higher (95% CI 0.53 - 3.61) compared to a patient without RPL, and the odds of an individual with RPL having a biochemical loss relative to having a successful live birth was 1.20 times higher (95% CI 0.45 - 3.17) compared to a patient without RPL, these findings were not significant.

Conclusions

A history of RPL did not significantly affect pregnancy outcomes after FET of a euploid embryo. Our data suggests that IVF/PGT-A is a reasonable option for select patients with RPL given these patients have similar pregnancy outcomes to patients without RPL who undergo euploid FET.

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Table 1 Pregnancy outcomes	RPL <35 (n=38)	Non- RPL <35 (n=36)	RPL 35-37 (n=28)	Non-RPL 35-37 (n=27)	RPL 38-40 (n=37)	Non-RPL 38-40 (n=34)	RPL >41 (n=11)	Non-RPL >41 (n=10)
Live birth	64%	58%	50%	55%	51%	61%	45%	30%
Biochemical loss	5%	3%	14%	10%	14%	14%	9%	20%
Clinical miscarriage	5%	8%	14%	17%	14%	0%	18%	10%
Did not conceive	26%	25%	14%	14%	16%	14%	18%	20%
Other	0%	6%	8%	4%	5%	11%	10%	20%