COMPARISON OF PREGNANCY OUTCOMES BETWEEN SINGLE-BIOPSIED AND REBIOPSIED EUPLOID EMBRYOS

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OBJECTIVE:

Preimplantation genetic testing (PGT) typically requires a single biopsy for aneuploid screening of embryos. However, a second biopsy is required in 1-3% of cases due to inconclusive interpretations. Rebiopsy may increase the probability of a patient having a known euploid embryo available for transfer. There is a paucity of data as to whether rebiopsy impacts pregnancy outcomes. This study aims to determine if rebiopsied euploid embryos have similar pregnancy outcomes to single-biopsied euploid embryos

MATERIALS AND METHODS:

This retrospective cohort included autologous single euploid frozen embryo transfers (sFET) after two biopsies. These were matched by age, body mass index, and anti-Müllerian hormone (AMH) with controls who underwent sFET after a single biopsy. Exclusion criteria included uterine malformations, mosaic or untested embryos, gestational carrier, and cryopreserved embryos thawed more than twice. The primary outcome was pregnancy rate. Secondary outcomes included implantation rate, clinical pregnancy rate, and live birth rate. Comparative statistics were performed using student's t-test, Wilcoxon rank sum test, ANOVA, and Kruskal-Wallis. Multivariate analysis with a generalized estimating equation was reported as an adjusted odds ratio (aOR), adjusting for patient age at embryo creation and AMH. A p-value <0.05 was considered significant.

RESULTS:

The rebiopsied group consisted of 106 cycles and the control group included 318 cycles. Patient demographics and fertility data were similar in the rebiopsied and single-biopsied groups except for median gravidity (1 (1) vs. 1 (2), p<0.01) and median parity (1 (1) vs. 0 (1), p<0.01). Differences in embryo and transfer cycle data included a higher median day of biopsy (6 (1)

days vs. 5 (1) days, p=0.01) and lower percentage of good quality embryos at transfer (47.17% vs. 76.73%, p<0.01) in the biopsied group. Pregnancy outcomes are shown below.

	Single Biopsy	Reblopsy	p-value	aOR (95% CI)	p-value
Pregnancy Rate	76.73%	64.15%	0.01	0.48 (0.29-0.80)	<0.01
Implantation Rate	64.47%	49.06%	<0.01	0.49 (0.31-0.78)	<0.01
Clinical Pregnancy Rate	64.47%	49.06%	<0.01	0.49 (0.31-0.78)	<0.01
Live Birth Rate	55.66%	41.51%	0.01	0.72 (0.44-1.19)	0.20

CONCLUSIONS:

Rebiopsied euploid embryos have significantly lower odds of implantation and pregnancy compared to single-biopsied euploid embryos. However, clinicians can reassure patients that they can achieve pregnancy, and most importantly, live births with rebiopsied euploid embryos. Our findings confirm the clinical utility of a second biopsy after receiving inconclusive PGT results.

IMPACT STATEMENT:

While rebiopsied euploid embryos exhibit a reduced implantation rate, the additional genomic information garnered from a second biopsy improves embryo selection and reproductive outcomes.

REFERENCES:

N/A