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

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

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**Preferred Presentation Type:**
Poster

**Study Type:**
Retrospective Cohort Study (includes comparator groups)

**Category - Subcategory(ies):**
Genetics: PGT

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All Other Categories

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**Abstract Text:**
**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 rebiopsied group. Pregnancy outcomes are shown below.

<table>
<thead>
<tr>
<th></th>
<th>Single Biopsy</th>
<th>Rebiopsy</th>
<th>p-value</th>
<th>aOR (95% CI)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pregnancy Rate</td>
<td>76.73%</td>
<td>64.15%</td>
<td>0.01</td>
<td>0.48 (0.29-0.80)</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Implantation Rate</td>
<td>64.47%</td>
<td>49.06%</td>
<td>&lt;0.01</td>
<td>0.49 (0.31-0.78)</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Clinical Pregnancy Rate</td>
<td>64.47%</td>
<td>49.06%</td>
<td>&lt;0.01</td>
<td>0.49 (0.31-0.78)</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Live Birth Rate</td>
<td>55.66%</td>
<td>41.51%</td>
<td>0.01</td>
<td>0.72 (0.44-1.19)</td>
<td>0.20</td>
</tr>
</tbody>
</table>

**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.

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Biographical Sketch Dr. Samantha Estevez is a fellow in Reproductive Endocrinology and Infertility at the Icahn School of Medicine at Mount Sinai in New York City and Reproductive Medicine Associates of New York. Dr. Estevez earned her Bachelor of Arts in History and Women's Studies at the University of North Carolina at Chapel Hill where she graduated summa cum laude and with her honor's thesis in Japanese history. She completed her medical school education at the Northwestern University Feinberg School of Medicine in Chicago and her residency in Obstetrics and Gynecology at the Donald and Barbara Zucker School of Medicine at Hofstra Northwell in New York. Throughout her medical training, Dr. Estevez has received numerous awards, including Northwestern's Global Health Initiative Scholarship, the Northwell Health Culture of Care in Action Award, and induction into the Gold Humanism Honors Society. As a resident, Dr. Estevez was the Chief Resident of Research and a member of the residency interview committee. She has authored numerous articles in peer-reviewed journals and presented at several prestigious conferences, including the American Society for Reproductive Medicine Annual Meeting, the American College of Obstetricians and Gynecologists Annual Meeting, and the World Professional Association for Transgender Health Annual Scientific Symposium. Her research and clinical interests include LGBTQIA+ fertility, access to care for underrepresented minorities, reducing health disparities, and fertility preservation.

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