



AMERICAN SOCIETY FOR REPRODUCTIVE MEDICINE
2024 SCIENTIFIC CONGRESS & EXPO

SUCCESS OF SINGLE EUPLOID EMBRYO TRANSFER IN PATIENTS EXPERIENCING PRIMARY VERSUS SECONDARY INFERTILITY

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OBJECTIVE:

There is limited data comparing pregnancy outcomes after assisted reproductive technology (ART) treatment in patients with secondary infertility compared to those with primary infertility. This study evaluates outcome in patients with a history of a live birth (secondary infertility) versus those with no history of a live birth (primary infertility) who attempt their first single euploid embryo transfer (SEET).

MATERIALS AND METHODS:

This was a retrospective cohort study conducted at an academic fertility center that included all patients who underwent their first, frozen synthetic SEET cycle between 2016-2023. Patients were excluded if they had a prior pregnancy resulting in miscarriage or termination, and use of embryos tested for monogenic diseases or sex selection. Descriptive data were analyzed with chi square analysis and Mann-Whitney U tests. Logistic regression model adjusted for age, oocyte age, BMI, year of SEET, endometrial thickness, and embryo quality was performed to compare the primary outcome of ongoing pregnancy/live birth (OP/LB) and secondary outcomes of chemical pregnancy, clinical pregnancy, and clinical pregnancy loss between patients with secondary infertility and primary infertility. A sub-analysis was performed to account for mode of prior delivery and its effect on outcome.

RESULTS:

A total of 340 patients with secondary infertility and 2672 patients with primary infertility who underwent their first, frozen synthetic SEET cycle were included. Patients with secondary infertility were significantly older than patients with primary infertility (37.2 ± 3.7 vs 35.8 ± 4.0 $p=0.<0001$). The rate of OP/LB in the secondary infertility group was 61.5% versus 56.8% in the primary infertility group ($p=0.19$). However, adjusted analysis showed significantly higher odds of OP/LB with secondary infertility compared to primary infertility (OR 1.30 CI 1.02-1.65,



p=0.03). There was no significant difference in secondary outcomes. When analyzing patients with history of c-section, rate of OP/LB was 52.8%, with no difference in odds of OP/LB compared to primary infertility (OR 0.90 CI 0.62-1.3, p=0.56). Patients with secondary infertility and history of vaginal delivery had the highest rate of OP/LB at 67.1%, significantly higher than patients with primary infertility (OR 1.68 CI 1.23-2.29, p=0.001).

CONCLUSIONS:

Patients with secondary infertility appear to have a higher likelihood of OP/LB compared to those with primary infertility when attempting a SEET. However, this difference did not persist when controlling for mode of delivery. While patients with a history of prior vaginal delivery appeared to have more success than their primary infertility counterparts, this was not the case in those with prior c-section. These findings can significantly enhance patient counseling prior to SEET.

IMPACT STATEMENT:

Patients with secondary infertility can anticipate higher ongoing pregnancy/live birth rates during their first SEET compared to those with primary infertility, with the difference particularly notable among those with a prior vaginal delivery rather than c-section.

REFERENCES:

N/A