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REPRODUCTIVE OUTCOMES IN SINGLE EUPLOID EMBRYO TRANSFER CYCLES IS INDEPENDENT OF WHETHER THE EMBRYO ORIGINATED FROM A FRESH OR CRYOPRESERVED OOCYTE

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OBJECTIVE:

It is common practice in ART treatment to transfer frozen embryos derived from fresh oocytes. Yet, there is a growing subset of patients who are now returning to treatment and using cryopreserved oocytes to create embryos for transfer. Whether pregnancy rates are affected by the use of embryos developed from cryopreserved oocytes has not been fully assessed in ART literature. The goal of this study is to compare pregnancy outcomes from patients undergoing frozen, single euploid embryo transfers (SEETs) who used embryos developed from fresh oocytes compared to embryos created with cryopreserved oocytes.

MATERIALS AND METHODS:

This study included patients who underwent autologous SEET cycles at a single academic center from September 2016 to February 2022. All PGT-A testing was performed on blastocysts using next generation sequencing. Only patients who underwent a SEET under a synthetic endometrial preparation cycle were included. Transfer cycles were grouped based on whether the embryo was derived from fresh oocytes versus cryopreserved oocytes. Vitrification was used for all cryopreservation. Demographic and embryologic characteristics were collected. The primary outcome was ongoing pregnancy and live birth rate. Secondary outcomes included chemical pregnancy rate, implantation rate, biochemical pregnancy rate, and early pregnancy loss rate. Data was analyzed by student's t-test and chi-square. Data was also analyzed using a multivariate regression analysis fitted with a general estimate equation (GEE) model. A sample size of 93patients per group was calculated to have 80% power to detect a 20% difference in ongoing pregnancy and live birth (α=0.05).

RESULTS:

Of the total 7,810 SEET cycles identified, 7,674 cycles used euploid embryos developed from fresh oocytes and 136 cycles used euploid embryos developed from cryopreserved oocytes. A similar number of oocytes and mature oocytes were collected in each group, however there were significantly fewer blastocysts (P=0.001) and fewer blastocysts biopsied (P=0.0005) in the group using embryos developed from cryopreserved oocytes. Pregnancy rates did not differ between the two groups. A GEE model was then used and adjusted for oocyte age, age at transfer, BMI, AMH, endometrial thickness at transfer, previous number of PGT-A tested transfers, and embryo morphologic quality. There was no difference in ongoing pregnancy/live birth (aOR 1.0, 95% CI 0.6-1.9), biochemical loss (aOR 1.2, 95% CI 0.5-2.7), or clinical loss (aOR 0.59, 95% CI 0.3-1.3)

CONCLUSIONS:

As patients who previously cryopreserved oocytes return and attempt pregnancy, we are challenged with providing personalized predictive tools to support accurate counseling on the reproductive potential of developing these oocytes into embryos. Our study showed that ongoing pregnancy and live birth rates do not differ in SEET cycles in patients whether their embryo originated from a fresh or cryopreserved oocyte.

IMPACT STATEMENT:

This study shows that patients who use euploid embryos developed from cryopreserved oocytes have similar pregnancy outcomes compared to using fresh oocytes.

REFERENCES:

N/A