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ASSESSING REPRODUCTIVE POTENTIAL OF COMPARABLY GRADED EUPLOID EMBRYOS DERIVED FROM FRESH VERSUS FROZEN OOCYTES

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Title:

ASSESSING REPRODUCTIVE POTENTIAL OF COMPARABLY GRADED EUPLOID EMBRYOS DERIVED FROM FRESH VERSUS FROZEN OOCYTES

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Preferred Presentation Type:

Oral or Poster

Study Type:

Retrospective Cohort Study (includes comparator groups)

Category - Subcategory(ies):

ART: Clinical

ART: Laboratory

ART: Outcomes

References:

[1] Friedenthal J et al. Clinical implementation of algorithm-based embryo selection is associated with improved pregnancy outcomes in single vitrified warmed euploid embryo transfers. J Assist Reprod Genet. 2021;38(7):1647-53.

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Trainee: Yes

Abstract Category:

All Other Categories

Applied for the In-Training Award for Research**Abstract Text:**

OBJECTIVE: To determine whether euploid embryos derived from vitrified oocytes have similar reproductive potential to those derived from fresh oocytes when matched by morphologic score.

MATERIALS AND METHODS: This single center study included patients who underwent oocyte cryopreservation, warming, and subsequent single euploid embryo transfer (SEET) from January 2016 to January 2025. SEET cycles utilizing vitrified oocytes (“frozen”) were matched 1:3 based on morphologic score at embryo cryopreservation to those who used fresh autologous oocyte (“fresh”) retrieved during the same period. Embryo score was determined by a decision support tool based on day of biopsy, expansion, and grades of trophoctoderm and inner cell mass at time of cryopreservation [1]. The primary outcome was live birth. Secondary outcomes were positive pregnancy, clinical pregnancy, biochemical loss, and clinical loss. Analyses of SEET outcomes were performed by score subgroups. Score subgroups were determined by tertile ranges: Excellent 3.52-4.69, Good 2.47-3.52, and Fair 0.35-2.47. Wilcoxon rank and chi square were used for comparative statistics; logistic regression fitted with generalized estimating equation was used to adjust for confounding variables (oocyte age, year of treatment, number of prior SEET cycles) and calculate adjusted odds ratios (aOR), with fresh oocyte SEET cycles as the reference group.

RESULTS: A total of 200 SEET cycles from 144 patients using frozen oocytes and 600 SEET cycles from 583 patients using fresh oocytes were included in the study. In univariate analysis, live birth rate was similar between groups (frozen 53.5%, fresh 53.3%, $p=0.97$). After adjusting for confounders, euploid embryos derived from frozen oocytes had similar odds of live birth compared to those derived from fresh oocytes (aOR 0.81, 0.51-1.28), with no significant differences in odds of positive pregnancy (aOR 0.85, 0.51-1.41), clinical pregnancy (aOR 0.97, 0.59-1.60), biochemical loss (aOR 0.85, 0.40-1.79), or clinical loss (aOR 1.56, 0.74-3.28). Chance of live birth was similar between groups after transfer of Excellent-scored (3.52-4.69) embryos (frozen 59.4%, fresh 66.0%, $p=0.32$; aOR 0.56 [0.27-1.17]), Good-scored (2.47-3.52) embryos (frozen 53.8%, fresh 55.4%, $p=0.83$; aOR 0.83 [0.46-1.50]), and Fair-scored (0.35-2.47) embryos (frozen 47.0%, fresh 38.4%, $p=0.22$; aOR 1.69 [0.81-3.52]).

CONCLUSIONS: Euploid embryos derived from vitrified oocytes have similar reproductive potential to those derived from fresh oocytes with the same morphologic score.

IMPACT STATEMENT: Patients utilizing vitrified-warmed oocytes undergoing SEET can be reassured that they have similar chances of live birth to those using fresh oocytes when morphologic score is equivalent. Prior vitrification of oocytes does not appear to affect reproductive potential of euploid embryos.

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Biographical Sketch Early success, marked by his first publication in CELL at Harvard Medical School, inspired Joseph to continue his research endeavors in reproductive endocrinology and infertility. Joseph has been with Reproductive Medicine Associates of New York since 2011. Joseph has authored over 400 peer-reviewed abstracts & manuscripts. Passionate about development, he cultivates relationship with investors & entrepreneurs to advance reproductive endocrinology & infertility care.

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Organization Name	Relationship Type	Who has this Relationship?	
	Relationship Began - Friday, August 25, 2017 Relationship Ended - Friday, November 1, 2024		

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