

OOCYTE WARMING OUTCOMES AND LIVE BIRTH RATES OVER 5-7 YEAR FOLLOW-UP PERIOD AFTER PLANNED OOCYTE CRYOPRESERVATION CYCLES

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Background

Since the availability of oocyte cryopreservation (OC) for fertility preservation only, the number of patients undergoing planned OC has increased exponentially. While limited by follow-up time, prior data has shown return for oocyte warming is low. Little is known of the outcomes and live birth rates after warming oocytes from planned OC cycles.^{1,2}

Objective

To assess outcomes and live birth rates from oocyte warming cycles over a 5–7-year follow-up period after planned oocyte cryopreservation (OC) cycles using the Society for Assisted Reproductive Technology Clinic Outcome Reporting System (SART-CORS) database.

Materials and Methods

Data were obtained from the SART-CORS database from all planned OC cycles of autologous oocytes for fertility preservation between 2014 to 2016 and all linked oocyte warming cycles through 2021 to allow for a 5-7-year follow-up period. OC cycles performed for oncologic, medical, or infertility diagnoses were excluded, along with cycles with fertilization of any portion of fresh oocytes. Outcomes from warming, including likelihood of obtaining an embryo for cryopreservation or fresh embryo transfer (ET), and resulting live births were compared across SART age groups. Statistical analysis was performed using Chi-Square test for independence and the Cochran-Armitage Test for Trends.

Results

From 2014-2016, 14,897 patients underwent 19,148 planned OC cycles. Only 657 patients (4.4%) returned for warming cycles within 5 to 7 years of follow-up. Of those who returned, 78.1% obtained a usable embryo, defined as having at least one embryo for fresh transfer and/or cryopreservation, and 61.8% underwent a fresh ET. The minority of patients (8.3-17.5%) opted for a freeze-all approach. There was no difference in obtaining a useable embryo ($p=0.199$) or having a fresh ET ($p=0.257$) across SART age groups. Of patients who had an embryo for fresh transfer in all age groups, 35.7% resulted in a live birth. However, after including patients who did not obtain any embryos, the overall live birth rate (LBR) decreased to 26.4%. In both groups, there was a significant decrease in the LBR with increasing age at time of OC ($p = 0.0001$ and $p < 0.0001$ respectively). There was no significant difference in time between planned OC and subsequent fresh embryo transfer between SART age groups ($p = 0.1261$) (Table 1).

Conclusions

While return for oocyte warming within 5 to 7 years of planned OC is low, the outcomes for patients who do return for oocyte utilization is reassuring. The majority of patients obtain a usable embryo from oocyte warming cycles and live birth rate after fresh ET is reassuring and demonstrates expected age-related decline. However, given the low return rate, the yield on a per-planned OC cycle is very low.

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References

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Table 1 Live birth rates of patients after warming of oocytes from planned OC cycles

AGE AT RETRIEVAL	LBR OF PTS WITH FRESH ET % (N)	LBR OF PTS WITH FRESH ET OR NO EMBRYOS % (N)	TIME FROM PLANNED OC TO FRESH ET MEAN YRS (SD)
<35	50.8 (31)	39.2 (31)	3.44 (1.78)
35-37	38.5 (60)	30.3 (60)	4.14 (1.81)
38-40	32.4 (44)	22.3 (44)	3.98 (1.34)
41-42	24.3 (9)	16.7 (9)	3.13 (1.55)
>42	6.3 (1)	4.6 (1)	4.00 (-)
TOTAL	35.7 (145)	26.4 (145)	3.88 (1.67)