

Fertility-Sparing Treatment (FST) and Assisted Reproductive Technology (ART) in Patients with Endometrial Carcinoma (EMCA) and Endometrial Intraepithelial Neoplasia (EIN): Pregnancy Outcomes After Embryo Transfer (ET)

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INTRODUCTION

- The goal of non-surgical management (FST) for patients desiring future fertility with endometrial carcinoma (EMCA) and its precursor, endometrial intraepithelial neoplasia (EIN), is to clear the affected tissue and revert to normal endometrial function.¹
- Approximately 15% of patients treated with FST will have a livebirth (LB) without the need for ART.²
- Despite this low number, little information exists on the pregnancy outcomes for patients who utilize ART.**

PURPOSE

- To investigate pregnancy outcomes for patients who underwent embryo transfer after FST.

DESIGN

- Retrospective cohort study of all patients who underwent ET after FST for EMCA or EIN at a single center between 1/2003 and 12/2018.

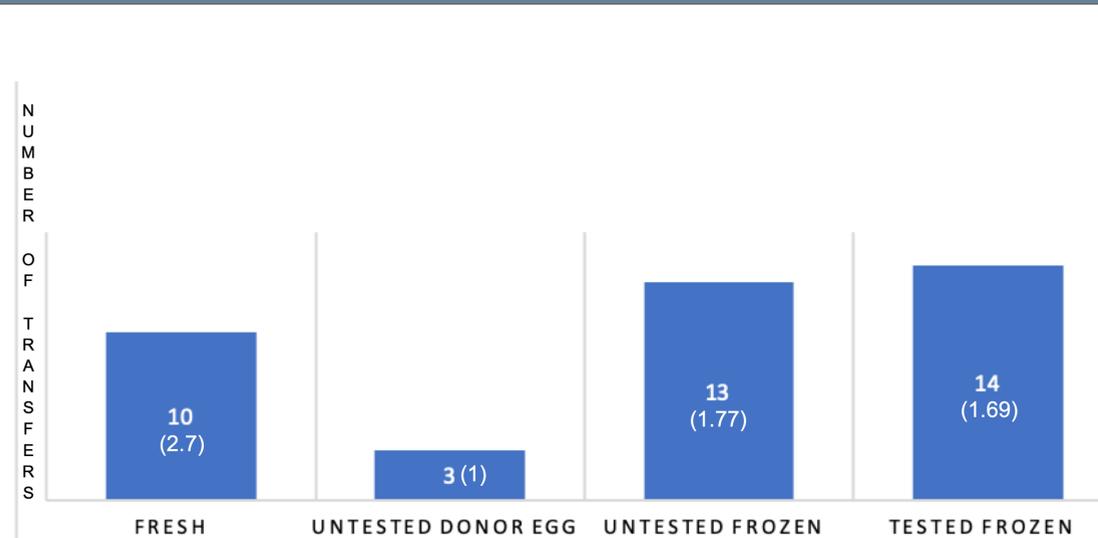
METHODS

- Patients who utilized ART but did not yet return for ET were excluded.
- Observed ET outcomes were sub-grouped into:
 - LB + ongoing pregnancy (OP)
 - Spontaneous abortion (SAB) + not pregnant (NP)
- Observed outcomes were compared to expected outcomes at our center, individually matched for age and type of transfer, specifically:
 - Fresh or frozen
 - Number of embryos transferred
 - With or without pre-implantation genetic testing for aneuploidies (PGT-A)
- Statistical analysis included the Wilcoxon Signed-Rank Test, with $p < 0.05$ considered significant.

RESULTS

- 14 patients were included, 3 with EMCA and 11 with EIN.
- The mean age (years) at initiation of ART following FST was 35.14 ± 4.77 (range 28 to 44) and includes two patients, aged 40 and 44, who ultimately used donor eggs.
- The average BMI at diagnosis was 26.51 ± 6.17 .
- Type of FST prior to ET included megestrol acetate (n=7), oral progesterone (n=5), levonorgestrel intrauterine device (n=1), and polypectomy (n=1).
- Average time (years) from diagnosis to first ET: 1.62 ± 1.46 .

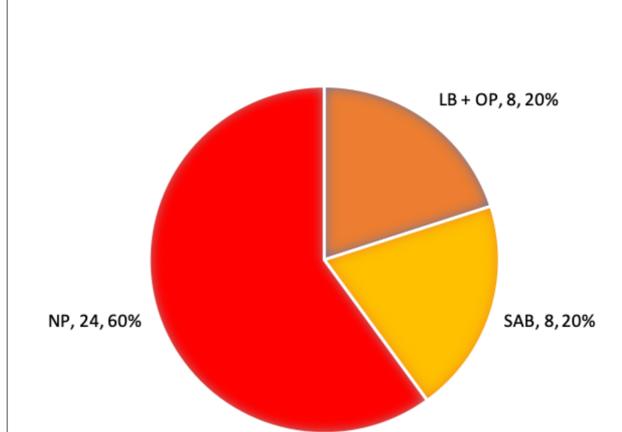
FIGURE 1: EMBRYO TRANSFERS



Data presented as: # of embryo transfers (average # of embryos transferred per cycle)

In our cohort, there were a combined total of 40 embryo transfers in 14 patients, for an average number of 2.86 ± 2.03 embryo transfers per patient (range of 1 to 9).

FIGURE 2: PREGNANCY OUTCOMES

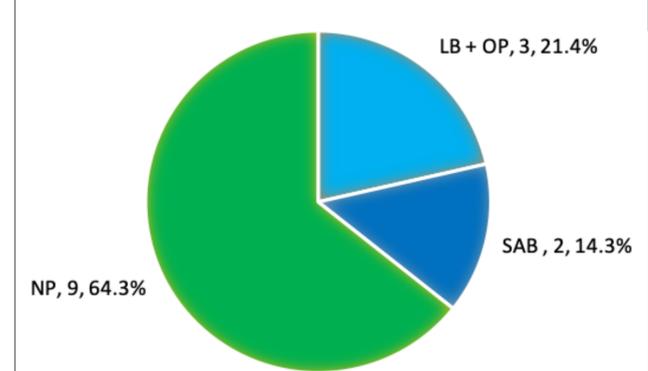


An analysis of observed outcomes by sub-group, compared to the expected from matched controls at our center showed that patients with EMCA/EIN after FST had a significantly lower LB/OP rate than expected ($Z = -5.04$, $df = 39$, $p < 0.01$).

CONCLUSIONS

- Patients who have undergone FST for EMCA/EIN have significantly poorer outcomes after ET than expected when compared to matched controls at our center.**
- Further evaluation of the impact of the diagnosis, treatment and repeated cavity instrumentation for FST for EMCA/EIN is necessary to create an individualized and optimized approach for this unique patient population.

FIGURE 3: ET WITH PGT-A OUTCOMES



- Six patients elected to use PGT-A [array comparative genomic hybridization (aCGH) and Next Generation Sequencing (NGS)] for a total of 14 frozen euploid embryo transfer cycles.
- There were an average of 1.69 ± 0.97 embryos transferred per transfer cycle.
- Of the 14 ET cycles, there were: 7 single euploid ET tested by NGS, 4 single euploid ET tested by aCGH, and 3 double euploid ET tested by aCGH.
- The euploid ET cycles resulted in an LB/OP rate of 21.4% compared to an expected rate of 62.8% ($Z = -3.32$, $df = 13$, $p < 0.001$).**

1. ACOG Committee Opinion #631. Reaffirmed 2017. Endometrial Intraepithelial Neoplasia.
 2. Gallos ID, Yap J, Rajkhowa M, et al. Regression, relapse, and live birth rates with fertility-sparing therapy for endometrial cancer and atypical complex endometrial hyperplasia: a systematic review and metaanalysis. Am J Obstet Gynecol 2012;207:266.e1-12.