HCLD,[2] Alan B. Copperman, MD,[2] Lucky Sekhon, MD[2] [1]Icahn School of Medicine at Mount Sinai, New York, NY; [2]Reproductive Medicine Associates of New York, New York, NY.

OBJECTIVE: There is emerging research quantifying the effect of vitrification on oocyte integrity and IVF outcomes. Oocyte vitrification-warming has been proposed to cause meiotic spindle disruption leading to altered chromatin structure. Previous research concluded a neutral impact of oocyte cryopreservation on embryonic aneuploidy rates, albeit those studies often had small sample sizes, included slow-freeze cycles, and were conducted prior to significant technological improvements to vitrification. The current study aimed to compare blastocyst aneuploidy rates from IVF with PGT, using fresh and vitrified oocytes.

MATERIALS AND METHODS: This single center, retrospective cohort study included IVF cycles and compared blastocysts from fresh and vitrified-warmed oocyte cycles that underwent PGT-A from 2010 to 2021. Donor oocyte cycles were excluded.

RESULTS: Vitrified-warmed oocytes were more likely to result in embryos that were cryopreserved on days 6 and 7 ($p<0.01$) compared to fresh oocytes. Fresh and vitrified-warmed oocytes resulted in similar blastocyst aneuploidy rates (OR 0.79, CI 0.38-1.67). While the number of blastocysts were similar between the two groups, vitrified-warmed oocytes resulted in less favorable rates of fertilization (OR 0.14, CI 0.05-0.40) and blastulation (OR 0.14, CI 0.04-0.48).

CONCLUSIONS: Our findings demonstrate that vitrifying and re-warming oocytes does not alter blastocyst ploidy rates. There is anecdotal evidence that the structural integrity of oocytes could be negatively impacted by cryopreservation, resulting in less efficient reproductive outcomes after thawing. Vitrified-warmed oocytes resulted in slower developing embryos, had inferior fertilization and decreased blastulation rates. However, the negative impact of oocyte vitrification at the molecular level does not appear to affect the embryonic genome, as aneuploidy rates did not significantly differ from that of embryos sourced from fresh oocytes.

IMPACT STATEMENT: While providers may utilize this data to support the preferential use of fresh oocytes when available, they should continue to reassure patients that oocyte cryopreservation is a suitable option for fertility preservation.

SUPPORT: None

	Fresh Oocyte Cycles (n=11190)	Vitrified-Warmed Oocyte Cycles (n=132)	p value
Patient age	37.5 ± 4.4	40.4 ± 4.1	<0.01
Oocyte age	36.8 ± 4.6	37.2 ± 3.6	0.41
AMH	2.8 ± 3.2	3.3 ± 2.3	0.19
BAFC	12.6 ± 7.2	13.2 ± 6.5	0.38
BMI	24.1 ± 4.5	23.6 ± 4.0	0.24
Day of embryo development (%)	6711 (60.0)	50 (37.9)	<0.01
5	3976 (35.5)	70 (53.0)	
6	472 (4.2)	12 (9.1)	
7			
Fertilization Rate (%)	79.3 ± 16.9	71.1 ± 19.1	<0.01
# Blastocysts	6.7 ± 5.1	4.6 ± 3.1	<0.01
Blastulation Rate (%)	74.3 ± 20.7	61.9 ± 25.0	<0.01
# Aneuploid Embryos	1.9 ± 1.8	1.2 ± 1.0	<0.01
Aneuploid Rate (%)	47.0 ± 35.4	50.8 ± 40.2	0.22

P-258 6:30 AM Tuesday, October 19, 2021

AUTOLOGOUS CRYOPRESERVED OVARIAN TISSUE TRANSPLANTATION (ACOTT): AN UPDATE FROM OUR PREVIOUS META-ANALYTICAL DATASET AS OF MARCH 2021. Fernanda Pacheco, MD,[1] Loris Marin, MD,[1] Kutluk H. Oktay, M.D., Ph.D.[2] [1]Yale University School of Medicine, New Haven, CT; [2]Yale University School of Medicine.

OBJECTIVE: Ovarian cryopreservation followed by auto-transplantation has recently been removed from the experimental category for fertility preservation (FP) by the ASRM. However, the current success rates of this FP approach are unknown. Therefore, we sought to perform a meta-analysis with the use of individual patient data, where available, to determine the success rates of autologous cryopreserved ovarian tissue transplantation (ACOTT) with previously cryopreserved tissue.

MATERIALS AND METHODS: Meta-analysis was performed by reviewing data from 2000, when the first ACOTT procedure was reported, to March 2021. Additional cases were retrieved from meeting abstracts and own database with 7 cases. We selected studies that reported ACOTTs with previously banked tissue in humans. We did not include any cases involving fresh ovarian tissue transplantation or those performed to treat idiopathic premature ovarian failure/insufficiency. Both authors reviewed and selected studies for eligibility, which resulted in 89 full-text studies assessed for eligibility. Cases were extracted from original reports and reviews by the junior author, and the senior author reviewed and verified the extracted data.

RESULTS: 42 reports were included for qualitative synthesis. The age at ovarian cryopreservation was reported in 206 women and the mean is 29.26 years (range: 9-40 years, SD: 5.36) with women undergoing the first ACOTT at the mean age of 32.52 (data available in 177 cases, range: 13-45 years, SD: 5.31). In 11 new studies and personal correspondence with authors, detailed data were available to determine live birth plus ongoing (LB + OG) pregnancy and in 12 new studies to calculate endocrine restoration rate. 322 new ACOTTs were performed in 263 new patients, resulting in the birth of 63 children and 11 OG pregnancies. Current cumulative LB+OG pregnancy rate is 26,9%. Since 2000[2], 518 women had undergone 631 ACOTTs, what resulted in 141 LB plus 11 OG pregnancies (145 singleton and 7 twin pregnancies, respectively) and 148 babies were born. To calculate ovarian activity recovery rate, we identified 315 patients where the information about endocrine function after ACOTT was available. Among those, 241 (76.50%) regained ovarian function with mean graft longevity of 34.49±25.63 months (range: 0-144).

CONCLUSIONS: ACOTT is a successful procedure for ovarian function restoration, however, there is a need for further improvement in pregnancy rates and longevity.

IMPACT STATEMENT: This unique meta-analysis should be useful counseling tool for those who are considered for ACOTT.

Reference

1. Pacheco F, Oktay K. Current Success and Efficiency of Autologous Ovarian Transplantation: A Meta-Analysis. *Reprod Sci.* 2017;24(8):1111-1120.

P-259 6:30 AM Tuesday, October 19, 2021

NOVEL CASE OF TRANSVAGINAL OOCYTE RETRIEVAL FOLLOWING OVARIAN TRANSPOSITION AND REVERSAL IN A PATIENT WITH RECURRENT RECTAL CANCER. Thanh Ha Luu, MD,[1] Ivy L. Lersten, MD,[1] Erin H. Foust, MSN, WHNP-BC,[1] Alex J. Polotsky, M.D., M.S.,[1] Jill Alldredge, MD,[2] Leslie Coker Appiah, M.D.[3] [1]University of Colorado Anschutz Medical Campus, Aurora, CO; [2]University of Colorado Anschutz; [3]The University of Colorado School of Medicine - Anschutz Medical Campus, Aurora, CO.

OBJECTIVE: Ovarian transposition is a common procedure for reproductive age women prior to pelvic radiation. For women who seek in vitro fertilization following ovarian transposition, abdominal retrieval is required for egg retrieval. However, many reported cases utilizing abdominal retrieval for fertility preservation report low oocyte yield. Yet, reversal of ovarian transposition is not typically performed and it is unclear if there are additional safety concerns with transvaginal oocyte retrieval once the ovarian pedicles have been mobilized for transposition. Herein, we report a novel case of oocyte retrieval following ovarian transposition and reversal in an oncofertility patient.

MATERIALS AND METHODS: Case report of a 37-year-old G0P0 with recurrent rectal adenocarcinoma and history of bilateral salpingectomy, and ovarian transposition who desires egg banking for fertility preservation prior to chemotherapy, robotic left anterior rectum resection and loop ileostomy. She had no prior radiation exposure. Her transposed ovaries were not visible on transvaginal ultrasound. Abdominal imaging showed the right ovary in lateral position above the right iliac crest with an antral follicle count (AFC) of 6 and the left ovary medial and inferior to the iliac spine with an AFC of 2. Her AMH was 3.228. The patient was counseled regarding possibility of low oocyte yield due to her current medical condition, suboptimal view of the ovaries