

LIVE BIRTH DATA FROM 498 ELECTIVE AND NON-ELECTIVE AUTOLOGOUS OOCYTE THAW CYCLES (2009-2018).

Anne Martini, DO,^a Rachel Horowitz, MD,^b Kate Devine, MD,^c Jui-He Tsai, PhD,^c Micah J. Hill, DO,^a Alan H. DeCherney, MD,^a Joseph Doyle, MD,^c Caleb Kallen, MD, PhD,^b ^aNational Institute of Child Health and Human Development, NIH, Bethesda, MD; ^bShady Grove Fertility and Lankenau Medical Center, Philadelphia, PA; ^cShady Grove Fertility, Rockville, MD.



OBJECTIVE: We present live birth data from 498 autologous treatment cycles using frozen/thawed oocytes. We hypothesized that elective oocyte cryopreservation results in higher live birth rates (LBR) than non-elective (onco-fertility, unanticipated lack of sperm, or limited insemination).

DESIGN: Retrospective Cohort.

MATERIALS AND METHODS: We identified all autologous In Vitro Fertilization (IVF) cycles using frozen oocytes (2009-2018). Ovarian stimulation, oocyte freeze/thaw, IVF, intracytoplasmic sperm injection (ICSI), embryo culture/transfer/vitrification were performed using published protocols. Primary outcome was live birth per thaw cycle. Secondary outcomes were stratified by indication for oocyte freezing, age at oocyte retrieval and by uti-

	All	<35	35-37	38-40	>40
No. of thaw cycles	498	158	147	145	48
<i>Elective</i>	218 (44%)	18 (11%)	83 (56%)	91 (63%)	26 (54%)
<i>Non-elective</i>	280 (56%)	140 (89%)	64 (44%)	54 (37%)	22 (46%)
LBR/Fresh ET	36.7%	40.9%	36.3%	29.5%	40.7%
LBR/Frozen ET	51.5%	41.3%	62.7%	51.2%	40.0%
Cumulative LBR/Thaw Cycle	36.9%	39.2%	40.8%	31.0%	35.4%
<i>Elective</i>	41.7%*	44.4%	44.6%	37.4%	46.2%
<i>Non-elective</i>	33.2%*	38.6%	35.9%	20.4%	22.7%

*P<0.001 age-adjusted cumulative LB per thaw.

lization of preimplantation genetic testing (PGT). Cumulative LBRs were compared using age-adjusted logistic regression.

RESULTS: In 498 thaw cycles involving 4,554 MII oocytes (average 9.1 oocytes/thaw), oocyte survival and fertilization rates were similar across all ages and indications for freezing (85.7% and 69.5% in aggregate). More than half of patients had a fresh embryo transfer (ET) and 48% had at least one embryo for vitrification (average 1.7 blastocysts frozen/thaw). Ten percent of thaw cycles had zero embryos for transfer or vitrification. On average, elective egg freezing patients thawed more MIIs (11.4 vs 7.4) and generated more vitrified blastocysts than non-elective (2.4 vs 1.1). Average LBR per fresh ET was 36.7% (n=300) and per frozen ET was 51.5% (n=163). Elective patients were more likely to utilize PGT compared to non-elective patients (43.6% vs 14.3%). LBR was higher when using PGT-confirmed euploid embryos. For all thaws, cumulative LBR from electively frozen oocytes was higher than from those frozen for non-elective indications (P<0.001). Across all age groups, cumulative LBR ranged from 30%-40% per oocyte thaw cycle.

CONCLUSIONS: We observed 30%-40% cumulative LBR after oocyte cryopreservation in all age groups and significantly higher rates when electively frozen oocytes were utilized. This underestimates the overall probability for live birth per oocyte thaw as 27% of our cohort still has unused embryos. LBR in the >40 group should be cautiously interpreted given the small cohort and higher mean numbers of MIIs thawed.

WHAT ARE THE CHANCES OF SUCCESS FOR COUPLES PERFORMING AN IVF CYCLE WITH ONLY POOR QUALITY DAY-3 EMBRYOS CULTURED TO THE BLASTOCYST STAGE?

Camille Grysole, MD, Simon Phillips, PhD, Lise Preaubert, MD, PhD, Louise Lapensée, MD, Ovo Clinic, Montréal, QC, Canada.



OBJECTIVE: In recent years, more and more IVF centers have chosen to culture all embryos until the blastocyst stage, in order to increase implantation rates. Therefore, it is important to inform couples of the strategy and to

estimate their chances of getting a good quality blastocyst; especially if the entire embryo cohort is of poor quality. The objective of this study was to evaluate the rate of usable blastocysts and the live birth rate, in couples undergoing an IVF/ICSI who obtained only poor quality day-3 (D3) embryos.

DESIGN: This retrospective cohort study, carried out between 2012 and 2016, analyzed 59 cycles of IVF/ICSI that resulted in at least one D3 embryo without any high quality embryos. A comparison to a control group comprising 122 cycles with D3 embryos of both good and poor quality was performed.

MATERIALS AND METHODS: Cycles in which all D3 embryos were of poor quality were included. All embryos were cultured until day 5 or 6 and were either transferred, cryopreserved or discarded. Exclusion criteria were egg donors, patients performing fertility preservation or modified natural cycle IVF. The embryo quality was scored according to the classification of the Istanbul consensus (Alpha / EHSRE 2011). Thus, D3 embryos were considered of poor quality if the blastomeres had a fragmentation rate > 25% (= grade 3 embryos) or if the number of cells was less than 6 (= slow-development embryos). The « usable blastocysts » rate was defined as the ratio of the number of transferred or cryopreserved blastocysts (if Gardner score ≥ 2BB) to the total number of D3 embryos. Blastulation and live birth rates were expressed as a percentage and compared between the groups by the Chi2 test.

RESULTS: In a total of 136 poor quality D3 embryos (from 59 patients), the blastulation rate was 23.5% (compared to a mean blastulation rate of 62% in

our laboratory), the rate of usable blastocysts was 11.0% and the live birth rate was 26.7% per embryo transfer. The rate of usable blastocysts was significantly lower if they originated from grade 3 embryos compared to slow-development embryos (6.8% vs 24.2%, p = 0.0054). The live birth rates were comparable by origin of blastocysts. Patients were statistically older and had lower anti-Mullerian hormone (AMH) levels than the control group, composed of 270 poor quality D3 embryos. Blastulation rates were statistically lower than in the control group (23.5% vs. 37.4%, p = 0.005). However, the rates of usable blastocysts and rates of live birth did not differ between the two groups. In the control group, the rate of usable blastocysts was also higher for slow-developing embryos compared to grade 3 embryos (16.1% vs 7.7%, p = 0.048).

CONCLUSIONS: Despite the absence of good quality D3 embryos, a cohort composed entirely of "rejected" embryos can result in a transferable blastocyst and live birth. It appears that the high fragmentation rate of blastomeres is associated with a poorer prognosis than the decreased number of cells on D3. This study could improve the counseling of couples facing this situation.

SUITABLE TIMING TO TRANSFER BLASTOCYSTS VITRIFIED ON DAY 6 IN FROZEN-THAWED CYCLES MAY BE DAY 5, NOT DAY 6.

Huilong Xu, master,^a Shumin Qiu, bachelor,^b Beihong Zheng, bachelor,^a Fujian Provincial Maternity and Children's Hospital, FuZhou, China; ^bAffiliation not provided.



OBJECTIVE: To investigate the suitable timing to transfer blastocysts vitrified on day 6 in frozen-thawed cycles.

DESIGN: Retrospective analysis.

MATERIALS AND METHODS: This is a retrospective cohort study of 1788 frozen-thawed cycles of blastocysts vitrified either on day 5 or on day 6 and transferred between June 2017 and November 2018. There were 518 cycles included blastocysts vitrified on day 6 (Group A) and 1270 cycles included blastocysts vitrified on day 5 (Group B). According to the timing for blastocyst transfer which was 5 or 6 days after ovulation or progesterone use in hormone replacement therapy (HRT) cycle, the cycles in Group A were divided into two groups: cycles with blastocysts transferred on day 5 (Group C, 103 cycles) and cycles with blastocysts transferred on day 6 (Group D, 415 cycles).