DESIGN: Prospective, randomized trial.

MATERIALS AND METHODS: From June 2014 to November 2014 data was collected from 51 patients undergoing IVF treatment whose oocytes were split and randomly allocated between sequential and 1-step mediums. Fertilized oocytes were cultured up to day 6. A modified Gardner grading system was used to score embryos. Good quality (GQ) blastocysts are those with at least an ICM and TE of grade B. A total of 140 embryos (from 17 patients) underwent a biopsy procedure on day 5/6 and aCGH testing. Statistical analysis was performed using Fisher's exact test, and the results were considered significant if $P<0.05$.

RESULTS: Fertilization, embryo development and aCGH results are shown in the table.

	Sequential (ICSI)	1-Step (ICSI)
MII oocytes	423	417
Fertilized (%)*	334 (79.0)	299 (71.7)
Day 5- GQ Blastocyst (%)	176 (52.7)	163 (54.5)
Day 6- GQBlastocyst (%)*	36 (10.8)	18 (6.0)
Euploid Embryos (%)	32 (41.6)	36 (57.1)
Aneuploid Embryos (%)	45 (58.4)	27 (42.9)

*<0.05

CONCLUSIONS: ICSI fertilization rate and day-6 blastocyst development was higher using the sequential medium. However, total usable embryo rate (day-5 plus day-6 blastocysts) were comparable (NS), even when calculated using the number of MII eggs injected. On the other hand, a higher proportion of embryos tended to be aneuploid using the sequential culture system. This difference was not statistically significant (which may be a type II error due to a low sample size). These outcomes demonstrate that both sequential and 1-step culture system are equally adequate to support early embryo development. With the increasing use of different morphokinetic systems, it may carry some advantage to use the more recently introduced 1-step culture system. Based on our results analyzing two critical parameters embryo development/morphology and chromosomal status, the adequateness of 1-step culture is demonstrated.

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EFFICIENCY OF CRYODEVICE IN EGG BANKING: IS ONE DEVICE SUPERIOR THAN OTHERS? J. Lim,[a] R. Holmes,[b] T. O'Leary,[c] J. Liebermann,[d] E. Magno,[e] A. Brewer,[f] J. Graham,[a] M. Tucker.[a] [a]Shady Grove Fetility, Rockville, MD; [b]Boston IVF, Waltham, MA; [c]Coastal Fertility Specialists, Mount Pleasant, SC; [d]Fertility Centers of Illinois, Chicago, IL; [e]Fertility Center of Illinois-Highland Park, Highland Park, IL; [f]Fertility Institute of Hawaii, Honolulu, HI.

OBJECTIVE: There are a number of commercially available storage devices used for the vitrification of oocytes. The increased cooling and warming rates of an "open" device are favored over that of a closed system. The thickness of the loading region of the storage device may affect the kinetics of rapid temperature change. This study is designed to evaluate three open devices that differ in thickness by comparing cryo-survival, fertilization, cleavage and clinical pregnancy rates, as well as the number of cycles with surplus blastocysts available post embryo transfer.

DESIGN: Retrospective study.

MATERIALS AND METHODS: We reviewed donor oocyte warming cycles performed by multiple IVF laboratories using vitrified oocytes from a commercially available donor egg bank. Mature donor oocytes were vitrified on one of three different cryodevices labeled A-C. The thickness of each device varied from 0.012'' (A), 0.009'' (B) to 0.005''(C). A proven oocyte vitrification protocol was used (7.5% EG+DMSO followed by 15% EG+DMSO+0.5M Suc) with commercially available media (Irvine Scientific). Each recipient received between 5 to 7 oocytes and they were inseminated by ICSI. Surplus blastocysts were vitrified for future use.

RESULTS: Oocyte survival, fertilization, embryo cleavage and clinical pregnancy rates (presence of a fetal heart beat) are comparable between the groups and do not appear to be affected by the thickness of the cryo device. Of note is a higher percentage of cycles with surplus blastocysts available for vitrification with cryodevice C, the thinnest device, as compared to device A, the thickest device (49% vs 41% respectively P=0.02, Fisher's Exact test). There was no significant difference observed in SAB or cancellations between devices.

CONCLUSIONS: The rates of oocyte cryo survival, fertilization, embryo cleavage, clinical pregnancy and IR by FCA are not significantly affected by thicknesses of the cryo device. However, more cycles resulted in surplus blastocysts that were vitrified and available for future cycles using the thinnest cryo device (C) as compared to the thickest device. While all labs received training in carrying out an identical protocol, it is impossible to completely control for any differences between labs as cryodevices segregated exactly with the laboratory staff and environment.

	A	B	C
Thickness	0.012"	0.009"	0.005"
Cycles	325	609	578
% Survival	89%	85%	84%
% Cleavage	95%	96%	98%
% Clinical	50%	49%	51%
% SAB	7%	6%	7%
IR by FCA	37%	36%	38%
% cycle with surplus blast	41%	45%	49%
Canceled cycles*	21 (6%)	49 (8%)	36 (6%)

*Due to no egg survival, no fertilization or arrested embryos.

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EMBRYO GENDER RATIO VARIES ALONG WITH DEVELOPMENT BEFORE IMPLANTATION. G. M. Grunert,[a] W. A. Wun,[a] S. Chauhan,[b] L. Schenk,[a] R. Mangal,[a] J. Blazek,[c] E. C. Mazur,[a] E. Kovanci,[a] C. Vanijgul,[a] R. Dunn.[a] [a]Houston Fertility Specialists, Houston, TX; [b]Houston Fertility Specialist, Sugarland, TX; [c]Genesis Genetics, Houston, TX.

OBJECTIVE: Recently Orzack et al (2015) reported human gender ratio changed along with conception. More mortality rate for female embryos during in the womb, it makes the delivery bias to more male as the universal gender ratio stable at 105 to 106 male to 100 female at delivery. For ART cases, it has been reported significant much more male delivered due to the insemination procedure, IVF vs. ICSI, and blastocyst transfer (Tarrin et al, 2014; Maalouf et al, 2014). One of possible explanations is the female embryos has higher mortality rate not only after implantation but also before implantation. This study intends to verify the hypothesis that the trend of gender ratio change before conception, i.e. cleavage vs. blastocyst stage.

DESIGN: A retrospective study.

MATERIALS AND METHODS: The day 3 biopsy data were collected during 2001 to 2009. Totally 624 cases with 3907 embryos had day 3 biopsy. The preimplantation genetic screening (PGS) was done by FISH (Fluorescent In situ hybridization) which examined (chromosome 13,15,16,18,21,22, X, and Y chromosomes). For trophectoderm biopsy, the study duration is during 2/20/2012 -4/23/2015. Totally 605 cases included with 2534 blastocysts for PGS with aCGH. The definition of euploid is not the same between FISH (only examined 8 chromosomes)and aCGH (all 24 chromosomes). The determination of gender is the same as male embryos with Y chromosome and female embryos without Y chromosome. Chi-square used for the statistical analysis.

RESULTS: The trend of gender ratio along with development is summarized in Table 1.The overall gender ratio between cleaved and blastocyst embryos is not significant different. When considering euploid embryos only, significantly ($p<0.05$)more male embryo at blastocyst stage.

CONCLUSIONS: Majority of studies compare the gender at the time of PGS, i.e. day 3 or day5, and the time of delivery. As far as we know, this is the study compare the gender ratio between day 3 and day 5/6. It is interesting to see the overall gender ratio does not change but the gender ratio of euploid embryos significantly changed. Apparently the gender ratio of developing euploid is not constant. The data suggests more euploid female embryos arrested before day 5 or day 6 of development. This result supports the concept that female embryo had higher mortality rate before delivery.