ROUTINE TRANSFER OF MULTIPLE EMBRYOS IS NO LONGER NECESSARY TO ACHIEVE HIGH RATES OF HEALTHY SINGLETON BIRTHS PER TRANSFER IN WOMEN UP TO 42 YEARS OLD

#P-454

MC Schiewe,[1] RE Anderson,[1] F Garner,[2] N Nugent,[1] JB Whitney,[1] B Shapiro[2]

[1] Ovation Fertility/SCCRM, Newport Beach, CA; [2] Ovation Fertility/FCLV, Las Vegas, NV

Objectives

- Evaluate the importance of single euploid embryo transfer (SEET) to minimize the occurrence of multiple births, while sustaining a high level of pregnancy success.
- Strive to assess the role of cost factors (i.e., patient, lab and neonatal), the effectiveness of assisted reproductive technology (ART) treatments incorporating vitrification-all and preimplantation genetic screening (PGS) technologies, and the potential moral impact of promoting the latter ART services on patient health and well-being.

Materials & Methods

- Our routine laboratory procedures involve: ICSI, group culturing in Global™ medium + 7.5% protein supplement, tri-gas incubation in Panasonic MCO-5 incubators, transvaginal ultrasound guided ET, and microSecure vitrification of blastocysts in non-DMSO I.C.E. solutions (Innovative CryoEnterprises, NJ) with or without blastocyst biopsying BLBx).
- BL-Bx was facilitated by routine LZD of all Day 3 embryos, and initated TE laser/manual dissection of Day 5, 6 or 7 BL's >QG=3.
- Data were sorted and ranked in Excel.

OVATION FERTILITY™
THE NEXT GENERATION

Study Design

Using the national database available through the Centers for Disease Control (CDC)/ART as an industry standard, we contrasted our published annual IVF-FET outcomes in 2014 and 2015 to assess differences in IVF efficiency. By contrasting industry trends regarding fresh donor egg (DE)-ET (control group) to autologous frozen ET cycles, we intuitively assessed changes in number of embryos transferred, implantation rate and live birth rate (LBR)/ET and contrast national averages (N=450+ reporting clinics) to our SCCRM outcomes over time emphasizing ICSI-PGS/Freeze-All cycles. Additionally, we aimed to show how our clinical practices have impacted lab management and the overall quality of patient care.

Results

Although the mean number of fresh DE embryos transferred decreased from 2.0 to 1.7 between 2010 to 2014, respectively, little change in LBR (55.8% to 56.8%) has occurred. Conversely, FET success has steadily improved using fewer embryos nationally and optimized in elite programs like SCCRM which has progressively applied vitrification-all / PGS cycles (see Table).

US Centers for Disease Control (CDC)/ART Surveillance Annual Report Summary

2014/15 CDC/ART	Data Set	Age <35	Age 35-37	Age 38-40	Age 41-42
Number of transfers	National Total	24,740 / 30,806	12,626 / 15,837	9,343 /11,684	3,460 / 4,341
	SCCRM	82 / 93	75 / 70	72 / 68	27 / 29
Mean number transferred	National Avg	1.6 / 1.5	1.5 / 1.4	1.6 / 1.5	1.7 / 1.6
	SCCRM	1.1 / 1.0	1.2 /1.1	1.2 / 1.1	1.1 / 1.1
Live birth per transfer	National Avg	46.6% / 48.7%	44.0% / 44.5%	38.3% / 40%	32.1% / 34.6%
	SCCRM	73.1% / 68.8%	66.2% / 65.7%	55.0% / 69.1%	78.3% / 58.6%
Healthy single term birth/ET	National Avg	30.7% / 32.8%	30.6% / 31.8%	27.1% / 28.7%	23.3% / 25.6%
	SCCRM	56.4% / 61.3%*	56.3% / 55.7%	48.3% / 54.4%	69.6%* / 48.3%

* Highest reported value independent of age, that year

Discussion

- **We have effectively reduced twinning rates, without a decline in implantation success, by emphasizing SEET and trusting our microSecure vitrification system (>99.5% survival).**
- **Although a high proportion of IVF-PGS cycles in older women yield only aneuploid blastocysts (38-40yo=25%,41-42yo=42%, 43+yo=80%), SEET eliminates the emotional costs and fertility time delay of unnecessary fetal losses.**

Conclusions

Routine implementation of SEET is the most effective way to achieve single healthy term births through increased implantation efficiency and a significantly reduced risk of multiple births, as well as potential emotional and financial costs. Published reports have shown the added medical costs of iatrogenic multiple births greatly exceed the total cost of IVF cycles performed in the United States, and therefore must be seriously considered when factoring the routine use of PGS in IVF. Considering the overall effectiveness of SEET and vitrification, we believe that PGS is a societal bargain.

Disclosures: JW and REA serve as educators for Illumina. MCS developed mS-VTF without any commercial interests.