


ASRM 2020 Virtual Scientific Congress & Expo ART - LAB Inter-professional Collaboration

ART Lab: Outcome Predictors

O-104 - EUPLOIDY RATES AND PREGNANCY OUTCOMES USING THE ZYMÖT™ DEVICE FOR SPERM PREPARATION

 Sunday, October 18, 2020  2:05 PM – 2:20 PM EDT



Objective: To compare gradient sperm and *ZyMöt*™ sperm preparation and its impact on euploidy and pregnancy outcomes. **DESIGN:** Prospective Cohort study **MATERIALS AND**

Methods: Between April 2019 and April 2020 a total of 1219 embryos were available for analysis for PGT-A from 2825 oocytes fertilized with intracytoplasmic sperm injection. Two methods of sperm preparation are evaluated. A single 90% layer gradient preparation of sperm with a 10 minute centrifugation at 300g followed by a 10 minute wash with a HEPES buffered medium/10 mg per ml of human sera albumin. The second method was using the *ZyMöt*™ 850 µl device where 850 µl of raw semen is loaded into the devices and covered with 750 µl of HEPES/HSA solution. The device is placed in to a 37°C incubator for 30 minutes. Removal of 0.5 ml of the HEPES solution completes the preparation. Initial counts and motilities were evaluated before and after the two preparation methods. Embryos were evaluated on day 3 and assisted hatched for via laser ablation. Embryos on day 5 and day 6 with a distinct inner cell mass and multiple cells herniating form the zona pellucida were biopsied for PGS aneuploidy testing. Embryo biopsy consisted of laser removal of 5 to 7 cells from the trophectoderm juxtaposed to the inner cell mass. The biopsied cells were treated according to the reference laboratory protocol for off site aneuploidy screening. Embryos available for testing were vitrified and stored under liquid nitrogen until results were obtained from the reference laboratory.

Results: A significant higher euploidy rate from day 5 embryos was noted with the *ZyMöt*™ prepared sperm as compared to the gradient prepared sperm. A total of 358 day 5 embryos were biopsied with the *ZyMöt*™ prepared sperm resulting in 63% euploidy compared to 56% euploidy in 383 embryos from the gradient prepared sperm (P<0.05). There was not significant difference in euploidy rates with day 6 embryos in the two subgroups where 51% were euploid from the 245 *ZyMöt*™ embryos and 48% of the 233 embryos from gradient prepared sperm (not significant). There was not significant difference in ongoing

pregnancies between the two subgroups, where ZyMōt™ prepared sperm resulted in 70% ongoing pregnancies 58% implantation rate as compared to 77% ongoing and 64% implantation with gradient prepared sperm (not significant).

Conclusions: This study shows that although there was not a significant difference in pregnancy outcomes, there are higher euploidy rates with the ZyMōt™ prepared sperm. Overall resulting in more embryos available for transfer and possibly more available pregnancies. With very little changes in the way sperm is prepared in the ART industry in the past 30 years this study demonstrates the ZyMōt™ device provides an alternative to sperm preparation with fewer steps in the process.

Elisabeta Kasa, Darleen Taylor, Donna Covington, Elizabeth Williams, Sonam Bhakta, Ursula Balthazar

Aspire Fertility San Antonio, Aspire Fertility San Antonio, Aspire Fertility San Antonio, Aspire Fertility San Antonio, Aspire Fertility San Antonio, Aspire Fertility San Antonio

Author(s)



Anthony R. Anderson, D.HSc

Laboratory Director
Aspire Fertility San Antonio
Eastern Virginia Medical School
San Antonio, Texas, United States