12: ESTABLISHING THE FALSE NEGATIVE RATE OF PRE-IMPLANTATION GENETIC TESTING FOR ANEUPLOIDY USING TRANSFERS OF EUPLOID EMBRYOS IN A PROVEN-RECEPTIVE UTERINE ENVIRONMENT

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Objective
Healthy live births after the transfer of aneuploid/mosaic embryos after Pre-implantation Genetic Testing for Aneuploidy (PGT-A) prove the existence of a discreet false-positive rate of the test, with risks of discarding suitable embryos for transfer. Here we sought to quantify the false-negative rate of PGT-A using cycles in which the transfer of euploid embryos (EE) into a uterus that had eventually produced a live birth from said cycle ('proven uterus'), failed to implant.

Design
Retrospective cohort study.

Material and Methods
Using all completed multiple-embryo transfers (MET) at our academic fertility center from 2012-2017, we identified 2749 embryos transferred in 1228 cycles to a proven uterus. Percentage of embryos lost in a proven uterus utilizing PGT-A was compared to those transferred without using PGT-A. Difference of proportions analysis using a one-tailed Z-test compared the percentage lost among proven-uterus that utilized PGT-A to cycles that did not.

Results
Twenty-eight of 1228 cycles (2.3%) transferred multiple EEs after PGT-A to a proven uterus - all double embryo transfers (DET). These cycles resulted in 14/56 EEs (25.0%) failing to implant (false-negative rate). For non-PGT-A embryos transferred to a proven uterus (DET-only cycles), 328/908 embryos (36.1%) did not implant. The difference of proportion of embryos failing to implant between proven-uterus cycles that utilized PGT-A was statistically significant when compared to DET-only controls ($p = 0.046$).

Conclusions
The false negative rate of PGT-A testing, whereby EEs transferred into a receptive uterus (since in the same cycle sibling embryos had implanted and produced a live birth), is 25%. This high false negative rate of PGT-A add support to the inability of PGT-A to correctly identify suitable embryos for transfer. Ongoing research may help establish the false-negative rate of PGT-A and understand whether genetic mutations and non-chromosomal errors could be responsible for lack of implantation.

Support
None