26: ASSOCIATION BETWEEN EMBRYO TIME-LAPSE MORPHOKINETIC PARAMETERS AND PLOIDY STATUS: A PROSPECTIVE STUDY

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Objective
Time-Lapse Microscopy (TLM) is a promising, non-invasive tool in the objective evaluation of embryo development. Study objective was to examine the relationship between time-lapse parameters and ploidy in a standardized controlled ovarian stimulation (COS) cycle.

Design
This was a prospective, observational study set at a university-affiliated fertility center between 2016-2018.

Material and Methods
Women aged 21-41 years pursuing in vitro fertilization were screened using strict inclusion and exclusion criteria. All patients received a standardized controlled ovarian stimulation protocol. Oocyte retrieval was conducted 36 hours after hCG trigger, when at least 3 follicles reached 17 mm. Embryos were assessed using time-lapse parameters as well as conventional morphological assessment. Day 5 or day 6 blastocysts of good or fair quality per the Society for Assisted Reproductive Technology (SART) embryo morphology grades were biopsied for preimplantation genetic testing for aneuploidy (PGT-A). A total of 467 embryos were analyzed using time-lapse morphokinetics, of which 203 blastocysts were graded good or fair and were biopsied for PGT-A. The time-lapse parameters studied were the times between first and second cell division (P 2), second and third cell division (P 3), third and fourth cell division (P 4). Statistical analysis was performed using SPSS version 24 and Analysis of Variance (ANOVA).

Results
Of the 203 embryos that underwent PGT-A, 127 were euploid and 76 were aneuploid. There was no statistical difference in the P 2, P 3 and P 4 between euploid and aneuploid embryos. All values are presented in minutes and as mean+SD. The mean P 2 in euploid embryos was 583.7+247.0 and 607.6+262.3 in aneuploid embryos. The mean P 3 in euploid embryos was 173.3+283.2 and 194.0+302.1 in aneuploid embryos. The mean P 4 in euploid embryos was 2094.3+302.1 and 2079.4+329.6 in aneuploid embryos.

Conclusions
In this study, we found insufficient evidence to conclude that time-lapse parameters that we measured were associated with the embryo ploidy status.

Support
Ferring Pharmaceuticals, Inc