5: MORPHOKINETIC MARKERS OF HUMAN EMBRYOS AS A PREDICTOR FOR EARLY PREGNANCY LOSS

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Objective
Many candidate time-lapse markers have been studied regarding the selection of embryos with better chance for successful implantation. Embryonic causes of miscarriages account for 80-90% of early pregnancy loss. However, data about the relationship between embryo morphokinetics and frequency of pregnancy loss are still scarce. The objective of our study was to investigate the differences in embryo morphokinetics between a patient group with early pregnancy loss and a control group with live births.

Design
Retrospective, observational study

Material and Methods
The morphokinetics of 224 embryos which transfer resulted in early pregnancy loss was compared with that of 252 embryos which transfer resulted in live birth. All the embryos were from 476 patients undergoing ICSI treatment and day 5 single blastocyst transfers. Embryos were cultured and analyzed in EmbryoscopeTM. The comparison of 15 morphokinetic parameters (time of pronuclei appearance, time of pronuclei fading, cleavage times, morulae formation time, starting blastulation, full blastocyst stage, expansion and hatching timing) between the two patient groups was done by two-tailed t-test.

Results
Mean age, body mass index, fertilization and conventional embryology morphological parameters were not statistically different between both groups. Time lapse analysis showed that two developmental events occurred significantly later in pregnancy loss group than in live birth group - eight cells time point (t8) and nine cells time point (t9). The mean t8 and t9 values were significantly higher in the pregnancy loss group compared to the embryos from live birth group (58.28h vs. 55.89h (P=0.03) and 72.41h vs. 69.18h (P=0.04), respectively).

Conclusions
Embryos which transfer resulted in a pregnancy loss were significantly slower in reaching t8 and t9 in comparison with the control group. The transfer of human embryos with delayed developmental times t8 and t9 could lead to increased probability of occurrence of early pregnancy loss.

Support
None