GnRH Agonist Triggering Affects Early Morphokinetic Embryo Parameters

Galia Oron, Avi Ben-Haroush, Roni Garor, Dorit Asher, Maya Tuttnauer-Hamburger, Yoel Shufaro, Benjamin Fisch, Onit Sapir
Infertility and IVF Unit, Rabin Medical Center, Beilinson Hospital, Petach Tikva and Sackler Faculty of Medicine, Tel Aviv University, Israel

Backround: Oocyte and embryo kinetics are affected by treatment protocol and ovulation triggering medications. GnRh agonist triggering elicits an endogenous surge of LH and FSH as opposed to the persistently elevated hCG-mediated LH activity.

Aim: To compare embryo morphokinetics of embryos derived from GnRH antagonist cycles triggered with either GnRH agonist (Decapeptyl 0.2mg) or hCG (Ovitrelle 250 mcg), using the time lapse monitoring system (TMS).

Methods: A retrospective cohort study evaluating all TMS [EmbryoScope] data of fresh antagonist cycles in women ≤42. Timing of PB-extrusion, PN-fading, cleavage timings (t2-t8), CC2 (T3-T2) and S2 (T4-T3) durations were compared. Optimal CC2 was defined as >5 hours and optimal S2 was defined as < 1 hour. KID score was used for assessing embryo quality. Embryo morphokinetic parameters and cycle outcome were compared between embryos derived from both protocols. Multivariate logistic analysis was performed for confounding factors.

Results: 8,422 embryos deriving from 727 cycles; 2,406 embryos in the GnRH agonist triggering and 6,016 embryos in the hCG triggering group. The percentage of embryos with optimal s2 duration, symmetric blastomeres and no multinucleation was higher with hCG triggering group. Later stage embryo kinetic parameters of cleavage t2-t8 were similar. Differences remained significant in a multivariate model. The proportion of high (4/5) KID score embryos and pregnancy rates per transfer were similar.

Conclusions: The TMS allows documenting timing of events and length of intervals in embryo development. Type of oocyte maturation triggering might

influence embryo morphokinetics parameters and should be considered in embryo selection models.

Galia Oron