

P118. Does trophectoderm morphology better in predicting euploidy compared to inner cell mass? A retrospective study

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Context: Morphological and morphokinetic assessment are useful for selecting potentially normal embryo for transfer when euploidy status is not determined. Previous study showed trophectoderm (TE) quality is more predictive than inner cell mass (ICM) in determining euploid status. Objective: To evaluate euploidy predictability of ICM and TE morphology independently; and then to select blastocyst with highest euploidy predictability using combined chart based on their combined grades. Methods: Retrospective analysis of 853 fresh day 5/6 blastocysts from Jan 2015 to April 2017. Blastocysts were graded using Gardner blastocyst grading system. Blastocysts which scored A or B for both TE and ICM with protruding TE were selected for biopsy on day 5/6, and screened for aneuploidy using array comparative genomic hybridization. Statistical analysis (Fisher's exact) significant level at <0.05 . Patients: Patients undergoing intracytoplasmic sperm injection (ICSI) cycles and pre-implantation full chromosome screening on blastocyst stage. Interventions: Intracytoplasmic sperm injection, TE biopsy and cryopreservation. Main Outcome Measures: Euploid rates between grade A and B of TE; grade A and B of ICM respectively. To determine blastocysts with highest euploid predictability based on combined grades of ICM and TE (AA, AB, BA, BB quality). Results: For independent quality analysis, significantly higher proportion of blastocysts with grade A TE being euploid compared to grade B TE (59.4% vs 45.5%). Similarly, euploid rate of blastocysts with grade A ICM (57.9%) also significantly higher than grade B ICM (45.1%). When combining TE and ICM grades to assess blastocyst quality, euploid rate of blastocysts graded as BB was significantly lower than AA (38.41% vs 60.4%, $P=0.0001$), AB (38.41% vs 52%, $P = 0.01$) and BA (38.41% vs 54.5%, $P = 0.0095$) respectively. No significant difference between blastocysts with AA, AB and BA quality. Overall clinical pregnancy rate for transferring euploid embryos was 67.7%. Conclusions: Independent quality analysis showed stronger euploidy predictability are given to grade A over B. For combined quality analysis, our study did not show TE quality is more predictive over ICM in determining euploid status. However, blastocyst with BB quality associated with lowest euploid rate, and suggests it should be chosen last for transfer, with priority given to blastocysts with at least one grade A in TE or ICM, if any.

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