



Effect of morphological grading on pregnancy outcome of single frozen embryo transfer

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Euploid screening has been widely used to improve pregnancy outcomes in assisted reproduction, especially in elective single embryo transfer. However, studies on the efficacy of euploid screening in assisted reproduction are inconsistent and controversial. Ozgur et al. [1] added high-quality research by conducting a randomized controlled trial “Single best euploid versus single best unknown-ploidy blastocyst frozen embryo transfers.”

The embryo selection method in Ozgur’s study was consistent with general clinical in vitro fertilization (IVF) cycles, characterized by preferential transfer of embryos with the highest morphological grade regardless of whether they underwent preimplantation genetic testing for aneuploidies (PGT-A) or not. This screening method allows optimal embryo transfer based on existing conditions to maximize the benefit of the patient. However, when implemented in research, “using only best-scoring blastocysts” may not ensure that different groups are comparable.

Ozgur et al. [1] enrolled young women under the age of 35, apparently producing better quality and larger numbers of embryos than older women. Even so, it cannot be concluded that the embryos in the PGT-A group and the control group can select comparable high grades, and it is necessary to analyze the morphological grade differences between the two groups.

Wang et al. [2] found that trophectoderm (TE) rather than inner cell mass (ICM) was a significant predictor of euploidy, and that better-quality trophectoderm was significantly associated with increased embryo euploidy. Morphological grade is a confounding factor that cannot be ignored and will affect the euploid rate of the control group in Ozgur’s study. Coupled

with the transfer embryo selection method and age range, the high morphological grade of the control group is likely to be accompanied by a high euploid rate. Based on this possibility, it cannot be excluded that the insignificant difference between the PGT-A group and the control group is related to the proportion of euploid embryos.

Among euploid embryos, Nazem et al. [3] showed that ICM morphology is the best predictor of sustained implantation. Blastocysts with an ICM grade of A had greater odds of ongoing pregnancy/live birth and clinical pregnancy compared with B, but there was no statistical difference between TE grades A and B. These results tentatively suggest that those with blastocyst grade AB may have better pregnancy outcomes than those with grade BA. Extensively, even embryos of similar morphological grades may carry different fates, and accurately controlled morphological grades may lead to different pregnancy outcomes. In addition, embryos at different grade of expansion may also be a factor affecting pregnancy outcome, with expansion grade of 4 or 5 embryos being better than grade of 6 or other grades [3].

In conclusion, the absence of morphological grade information in Ozgur’s study may have resulted in differences in the composition of embryo quality between the two groups, affecting the stability of the conclusions. The effect of morphological rating during embryo screening should not be ignored.

Compliance with ethical standards

Conflict of interest The authors declare that they have no conflict of interest.

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