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Day 3 low quality embryos can develop to blastocysts and produce pregnancies: A retrospective study.

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Study question

Can day three embryos of low quality, which would usually be discarded, develop into blastocysts and produce a pregnancy?

Introduction

The culture of these low quality embryos to blastocyst stage allows us to recover and freeze some embryos that would have otherwise been discarded. When transferred in a posterior frozen cycle, these embryos can produce a pregnancy.

There is not a consensus to decide the fate of the poor quality supernumerary embryos on day 3. Vitrification of these embryos is highly inefficient due to their low implantation rates. However, by discarding the embryos we risk losing embryos that might implant. Their culture to blastocyst stage is an additional opportunity to assess whether it is worth it to cryopreserve them.

Material and Methods

This retrospective study includes 743 IVF cycles performed between January 2013 to September 2014.

For this study 743 couples were recruited, with ages between 22 to 45 years old. These patients had a fresh embryo transfer in day 3 and had low quality supernumerary embryos that were not selected for neither transfer nor vitrification. Those embryos remained in culture up to day 5-6, when they were re-assessed and cryopreserved if they had developed into blastocysts.

Results and Discussion

Of 1574 supernumerary embryos of low quality in day 3 that were left in culture until day 5-6, 80 (5.1%) developed into blastocysts (Grade 3CC or superior). 11 couples underwent a transfer of the study embryos, obtaining 6 pregnancies (54.5%), 5 of them being confirmed as clinical pregnancy rates (45.4%), resulting in 3 deliveries (27.3%).



Main Conclusion

This study included patients of different characteristics, so we cannot determine if this policy is useful for all kind of couples.

Extended culture to Day 5-6 of low quality supernumerary embryos on day 3 is an efficient strategy to cryopreserve embryos with low implantation potential on day 3. This strategy allows re-assessing embryos in their blastocyst stage, which is more indicative of their potential to produce a pregnancy. It its time and resource saving and provides a second opportunity to embryos that would otherwise be discarded.