How Many Embryos Should Be Transferred? A Validated Score to Predict Implantation Rate

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Introduction

In the majority of ART centers, maternal age is in fact the main criterion that determines the number of embryos to be transferred. However there are a lot of variations in implantation rate in patients of the same age. The aim of this study was i) to establish an objective prognostic score for the prediction of implantation rates according to clinical and biological parameters, ii) to define the number of embryos to be transferred according to this score, and iii) to validate this score in a prospective study.

Materials & Methods

The study involved retrospectively 1844 couples having 3219 embryo transfers to determine the clinical and biological parameters having the higher impact on implantation rates. We have calculated a score and defined an optimal number of embryos to be transferred (from 1 to 4) according it. In a prospective study involving 275 couples having 694 embryo transfers we have validated this score.

Results

Among the different biological and clinical variables tested, 4 were identified that influenced the implantation rate: female age, the ratio retrieved oocytes/mean daily dose of injected FSH, the rank of the attempt and the morphological appearance of the embryo cohort. These were included in a new transfer score whose prospective application for choosing the number of embryos to be transferred resulted in significantly lower number of transferred embryos (1.8 vs 2.0 p.001) and lower multiple pregnancy rates (10% vs 21%, p.001) while ongoing pregnancy rate increased (26 vs 20 %, p.001) thanks to an increase of the implantation rate between the two studies.

Conclusion

The calculated score allows to adapt the number of transferred embryos to each clinical and biological situation with a decreased multiple pregnancy rate.