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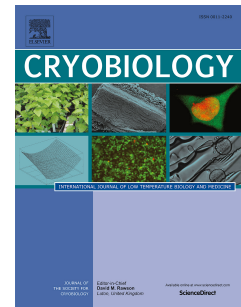
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Single blastocyst transfer (SET) and pregnancy outcome of day 5 and day 6 human blastocysts
vitrified using a closed device

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Abstract:

This study investigates the utility of the Rapid-i closed device for vitrification of human blastocysts on day-5 (D5) and day-6 (D6) of development and the implantation and pregnancy rate following single blastocyst transfer (SBT) of warmed D5/D6 blastocysts. This retrospective cohort study was performed at Edinburgh Assisted Conception Programme, EFREC, Royal Infirmary of Edinburgh between January 2013 and January 2017. Good quality blastocysts were vitrified on D5 or D6 using Irvine Vitrification medium (Irvine Scientific-USA) and the Rapid-I closed Vitrification SystemTM (Vitrolife, Sweden). After warming, blastocysts were cultured in G-TLTM medium (Vitrolife) supplemented with 20% HSA-solutionTM (Human Serum Albumin) for 2 hours before the transfer. The survival, pregnancy and implantation rates were compared in relation to the day of culture at the time of vitrification (D5/D6) in 1090 cryopreserved cycles. The overall survival rate was 93.4% (1018/1090) with no significant difference between the D5 and D6 groups: 93.9% (712/758) and 92.2% (306/332) respectively. Single embryo transfers of D6 vitrified/warmed blastocysts resulted in a lower implantation and clinical pregnancy rate compared to D5 embryos. The implantation rate (IPR) and clinical pregnancy rate (CPR) were respectively 49.6% and 43.0% for the D5 and 37.0% and 33.0% for the D6 embryos, which was statistically significant. The multiple pregnancy rate was 1.08% (0.98% for D5 vs 1.3% for day 6).

Keywords: Blastocyst Vitrification, Closed Vitrification System, Day-5 and Day-6, Single Blastocyst Transfer, Pregnancy Outcome

Introduction

With the improved culture conditions in *in vitro* fertilization (IVF), extended culture to the blastocyst stage has become more familiar [32]. A superior pregnancy outcome of fresh blastocysts compared

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