The Cryotec Method yields 100% Post-warmed Survival Rates in Day 3 Cleavage Stage Embryos and its Blastomeres

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ABSTRACT

Objective: In our previous report in 2016, we achieved 100% post-warmed survival rate for all cleavage stage embryos vitrified using the Cyrotec Method. Cryotec is an innovative method of vitrification to preserve oocytes and embryos of any developmental stage. Here in this study, we further demonstrate the efficacy of the Cryotec Method through analysis of a greater sample size, establishing the validity of the earlier findings. **Materials and methods:** A total of 111 Day 3 cleavage stage embryos with 897 blastomeres underwent cryopreservation by vitrification and subsequently warmed for FET cycles using Cryotec Vitrification and Warming Media since we commenced Cryotec Method from July 2013 until now (April 2017) in Alpha Fertility Centre. The study consists of 57 cases with patients in the age range of 18 to 44 with a mean age of 35.3. Practitioner techniques for vitrification and warming were adhered to manufacturers outlined SOPs (Cryotech, Japan). All embryos ranged from 5 cells to 14 cells with <15% fragmentation and were derived from either intracytoplasmic sperm injection or in-vitro fertilization. The survivability of embryos and its blastomeres were assessed in terms of the number of intact or lysed cells upon warming. **Results:** After Cryotec warming, all 111 embryos survived with no degradation in quality, yielding 100% post-warmed embryo survival rate. Furthermore, the blastomere survival rate also achieved 100%, indicated by the 897 healthy and intact blastomeres and the absence of lysed cells upon observation. The survivability of embryos was not affected by the number of cells nor degree of fragmentation. **Conclusion:** This study validates that the use of Cryotec Method for embryo vitrification and warming consistently achieved 100% post-warmed survival rates in Day 3 cleavage stage embryos and blastomeres in Alpha Fertility Centre. The Cryotec method realizes the total potential of embryo cryopreservation and proves to be superior compared to other vitrification methods practiced in ART laboratories worldwide today.

Clinical Outcome of Blastocysts derived from Frozen Donor Oocytes versus Fresh Donor Oocytes in Fresh Blastocyst Transfer Cycles

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ABSTRACT

Objectives: The Cryotec method has been employed in all frozen-warmed cycles at Alpha Fertility Centre (AFC) since July 2013. With the Cryotec method, we have consistently achieved 100% post-warmed survival rates of embryos (Lee et al, 2016), and a near 100% post-warmed survival of vitrified oocytes (Lui et al, 2016). This robust cryopreservation method has enabled us to establish oocyte banking in AFC since 2014. In this study we compare the clinical outcome of vitrified-warmed oocyte and fresh oocytes in patients undergoing oocyte donation program. **Methods:** Forty-one women underwent fresh blastocyst transfer using anonymously donated oocytes at Alpha Fertility Centre, Malaysia from March 2014 until December 2016. Nineteen of these patients were allocated with vitrified-warmed donated oocytes (Group A) while 22 patients received donated oocytes from fresh retrievals (Group B). Oocytes from Group A were vitrified and warmed using the Cryotec method (Cryotech, Japan). All oocytes had Intra-Cytoplasmic Sperm Injection (ICSI) and resultant embryos were cultured to day 5 or 6. The mean age of oocyte donors in Group A and Group B was 23.2 and 24.4 respectively ($p>0.05$); and mean age of recipients was 41.0 and 39.8 respectively ($p>0.05$). All recipients underwent a medicated transfer cycle using down regulation with Intra-muscular Depot Leucrin 3.75 mg, and endometrial priming with oral oestrogen (Progynova) in graduated doses. Progesterone pessaries were administered daily 7 days prior to the transfer. Blastocysts were transferred using standard embryo transfer (ET) protocols. **Results:** In Group A, a total of 284 oocytes were warmed. Two-hundred-and-seventy-two oocytes survived (Post-warmed Survival Rate: 95.8%). One patient in Group A failed to reach ET due to poor blastocyst quality obtained; while all patients in Group B progressed to ET. The mean number of blastocysts transferred was 1.8 and 2.0 for Group A and Group B respectively ($p>0.05$). Clinical Pregnancy Rate (CPR) for Group A was 66.7% and for Group B was 63.6%. Implantation Rates (IR) were 46.9% and 51.2% for Group A and B respectively. There was no statistical significance ($p>0.05$) found in CPR and IR between both groups. **Conclusion:** This study shows that vitrified-warmed donor oocytes using the Cryotec method yield clinical pregnancy and implantation rates comparable to fresh donor oocytes.