100% Post-warmed Survival Rate for 1491 Blastocysts in Alpha Fertility Centre

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ABSTRACT

Introduction: With the benefit of better endometrium receptivity in unstimulated cycles and supported by good post-warmed blastocysts survival rate, it is now clear that pregnancy rates for frozen blastocyst transfer is better than the transfer of fresh blastocysts. Alpha Fertility Centre has adopted the Cryotec Method for blastocyst vitrification and warming since July 2013. This study demonstrates the post-warmed survival rate for 1491 blastocysts in 1011 frozen blastocyst transfers (FBT). **Materials and Methods:** Since the commencement of the use of Cryotec Method in July 2013 till now (May 2017), Alpha Fertility Centre had vitrified and warmed 1491 blastocysts using the Cryotec Method for 1011 FBT patients. Only blastocysts which developed to at least expanding stage (quality of at least BG3BB according to Gardner's Blastocyst Grading System) were vitrified and warmed. The blastocyst vitrification and warming protocols were conducted according to manufacturer's protocols (Cryotech, Japan). The number of FBT cycles for each age group was 621 (<35 years old), 182 (35-37 years old), 111 (38-39 years old), 70 (40-41 years old) and 27 (≥42 years old). The number of blastocysts vitrified and warmed for each age group was 954, 258, 149, 91 and 39 respectively. **Results:** Of the 1491 blastocysts warmed, all blastocysts survived with morphologically intact inner cell mass and trophectoderm cells with no degradation in quality. **Discussion:** This study shows that by using the Cryotec Method, we consistently achieved 100% post-warmed survival rate in blastocysts.

Blastulation and Blastocyst Utilisation Rate of Vitrified-Warmed Donor Oocytes vs Fresh Donor Oocytes

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ABSTRACT

Objectives: Since the introduction of a robust vitrification method: the Cryotec Method, Alpha Fertility Centre (AFC) was able to establish an oocyte-banking program. Some programs have reported lower rate of blastocyst formation with the use of vitrified-warmed oocytes (Braga et al., 2016) while others reported similar blastulation and utilisation rates (Fischer et al., 2017). This is a retrospective and cohort study to examine the blastulation and blastocyst utilisation rates between the use of vitrified-warmed donor oocytes and fresh donor oocytes in AFC. **Methods:** This study included 751 mature oocytes obtained from 19 oocyte donors in our centre. Of those, 462 fresh oocytes were allocated to 24 recipients (Group A) while 289 oocytes were cryobanked for 24 thaw cycles (Group B) between May 2014 and April 2017. Oocytes from Group B were vitrified and warmed using the Cryotec Method (Cryotech, Japan). All oocytes had Intra-Cytoplasmic Sperm Injection (ICSI) and the resultant embryos were cultured to day 5 and day 6. The fertilisation, blastocyst formation and utilisation which includes blastocyst of high enough quality to either be transferred, biopsied or cryopreserved according to Gardner's Grading, were observed for both groups. All data were collected and compared from the same cohort of donors in the same period. The mean donor age was 23.7 for both groups whereas the mean paternal age was 46.0 for Group A and 43.3 for Group B ($p>0.05$). **Results:** The fertilisation rate was similar in both group A and B (69% and 65.1% respectively). However, there is a significant decrease ($p<0.05$) in blastocyst formation from embryos derived from vitrified oocytes (blastulation per 2PN in Group B = 66.4%) compared to those derived from fresh oocytes (blastulation per 2PN in Group A = 79.5%). Similarly, the blastocyst utilised per 2PN was significantly lowered ($p<0.05$) in Group B (34.6%) compared to their fresh counterpart in Group A (47.9%). **Conclusion:** While our centre was able to achieve high blastulation and blastocyst utilisation rates in embryos derived from vitrified-warmed oocytes, our preliminary study suggests that oocyte vitrification followed by ICSI may lead to lower embryo developmental competence compared to when fresh oocytes were used, and thus, the insemination of fresh oocytes should be preferred. Nevertheless, albeit the lowered rates, the use of cryopreserved oocytes allows better logistics and convenience to the donors, recipients and IVF centres. Sub-/infertile patients will also have more choices in the selection of oocytes and greater flexibility in timing of their IVF cycle.