BLASTOCYST VITRIFICATION AND WARMING: TWO YEARS AND 200 CYCLES

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Introduction:

Vitrification has evolved to be a reliable procedure for preservation of oocytes and embryos during in vitro fertilization. Its efficiency, coupled with excellent survival rates has led to rapid assimilation of the technique into embryology laboratories. Numerous methods are available which have varying degrees of technical difficulty. This study evaluates the results of over 200 cycles of vitrification and warming using the CryoTip.

Objective:

The aim of this study was to evaluate embryo survival and implantation rates for patients having blastocyst vitrification within the first 2 years following the introduction of the procedure.

Materials and Methods:

Blastocysts remaining after transfer were vitrified on day 5 and/or 6 post retrieval. Blastocysts at all stages of development (early, expanding, expanded and hatching) were individually vitrified using a kit (Irvine Scientific, Santa Ana, CA) and stored individually in CryoTips immersed in liquid nitrogen. No artificial collapsing of blastocysts or other manipulations were performed during the procedure. Blastocysts were warmed on the equivalent of Day 4 in either a natural or controlled cycle and transferred after a short incubation. Pregnancy testing was performed 10 days later.

Results: The study evaluated 202 cycles of vitrification and warming resulting in the transfer of 391 embryos from March 2007 through December 2008. From 443 blastocysts vitrified, 94% (418) were recovered during warming and 94% (391) of these survived and were available for transfer. Pregnancy and implantation rates were similar for patients using donor or autologous oocytes (see table).

	Own Oocytes	Donor Oocytes	Total
Cycles	126	76	202
Embryos transferred (mean/patient)	250 (2.0)	141 (1.9)	391
Pregnancies (sac on ultrasound)	65	31	96
# sacs	79	42	121
Clinical pregnancy rate (%)	52	41	48
Implantation rate (%)	32	30	31
Twins (%)	8/65 (12)	8/31 (26)	16/96 (17)
Triplets (%)	2/65 (3)	1/31 (3)	3/96 (3)

Discussion:

This study shows that vitrified blastocysts survive and implant at high rates after warming and transfer. Although vitrification can be a technically challenging procedure, it is a reliable method for preserving blastocysts. The move toward elective single embryo transfer absolutely requires a solid cryopreservation program, and vitrification has emerged as a very reliable method for storage of surplus embryos.