

SIGNIFICANT IMPROVEMENT IN PREGNANCY RATES FOLLOWING FROZEN EMBRYO TRANSFERS WHEN COMBINED WITH MICROARRAY-COMPARATIVE GENOMIC HYBRIDIZATION (aCGH)

David Hill, PhD¹, Mark Surrey, MD^{1,2}, Hal Danzer, MD^{1,2}, Shahin Ghadir, MD^{1,2}, Wendy Chang, MD² and Jason Barritt, PhD¹. ¹ART Reproductive Center, 450 North Roxbury Drive Suite 520 Beverly Hills, California, United States, 90210 and ²Southern California Reproductive Center, 450 North Roxbury Drive Suite 500 Beverly Hills, California, United States, 90210.

Objective: There is a growing body of evidence that embryo transfer (ET) of vitrified blastocysts in an unstimulated cycle improves implantation rates due to a more receptive uterine environment. Evidence is also growing that 24-chromosome screening to select euploid embryos improves implantation rates. This study looks at the effect of combining these two procedures on pregnancy rates by comparing outcomes of fresh versus warmed transfers of blastocysts that were screened by aCGH and those that were not.

Design: Retrospective data analysis at a private fertility clinic

Materials and Methods: 827 sequential, non-randomized, ET's performed over 11-months during 2012 – 2013 were evaluated. Fresh ET was performed at the blastocyst stage on patients with a mean age of 34.8 years. Warmed ET was performed in unstimulated cycles after blastocysts were vitrified then individually warmed using the Cryotop® method (Kitazato). Trophoctoderm biopsy followed by aCGH testing (Reprogenetics) was performed on Day 5 or 6 on patients with a mean age of 38.6 years.

Results: Significant improvement in clinical pregnancy (CP) was demonstrated in all warmed ETs following aCGH testing ($\hat{p} < 0.0216$). A trend in CP increase was found for both: warmed ET vs. fresh ET without testing ($\hat{p} < 0.0858$) and for warmed ET vs. fresh ET following aCGH testing ($\#p < 0.0520$).

Clinical Pregnancy Rates

	Fresh ET	Warmed ET
Untested	144/391 (37%) [^]	107/245 (44%) ^{*,^}
aCGH Tested	35/82 (43%) [#]	62/109 (57%) ^{*,#}

Conclusions: Significant improvement in clinical pregnancy rates may be obtained by taking advantage of the ability of A) blastocysts to survive trophoctoderm biopsy for aCGH testing, B) vitrification/warming methodology being successfully applied to biopsied blastocysts, and C) for warmed, euploid embryos to be transferred into an unstimulated uterine environment that is more receptive to embryo implantation.