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Title:

EUPLOID SINGLE EMBRYO TRANSFER WITH COMPREHENSIVE CHROMOSME SCREENING: FRESH VS FROZEN OUTCOMES

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Objective:
Assisted Reproductive Technology (ART) multiple pregnancy rates can be reduced through the transfer of a single high quality embryo. Comprehensive Chromosomal Screening of Embryos has revolutionized embryo selection and euploid embryos can be identified. Recently, it has been proposed that ovarian stimulation can be detrimental to the endometrial environment and that synchronized frozen embryo transfers (FET) may be beneficial. We undertook this study to determine whether the implantation rates of euploid embryos were different in stimulated (fresh) cycles of ART when compared to a matched group of euploid embryos transferred in an FET cycle.

Design:
Retrospective cohort study

Materials and Methods:
Patients who underwent an IVF cycle with q-PCR based comprehensive chromosome screening (CCS) and had ≥1 euploid embryo for ET from September 2010 to March 2015 were included. All embryos were biopsied at the blastocyst stage. Main outcome measures included pregnancy, implantation, clinical pregnancy, miscarriage and multiple gestation rates. Patients were segregated by SET occurrence and characterized into fresh or frozen/thaw cycles. Categorical variables were assessed by chi-square or Fisher's exact test for small frequencies, with significance at p-value <0.05.

Results:

Six hundred and thirty seven euploid SETs cycles (fresh cycle: n=243; frozen/thaw cycle: n=394) were identified. Pregnancy (75.5% (n=289) vs 66.3% (n=159)) and clinical pregnancy rates (PR) (62.5% (n=235) vs 53.1% (n=127)) were statistically higher in the frozen/thaw cycles. Low rates of multiple pregnancies (1.7 and 1.6%) were observed in both cohorts.

Table:

	Frozen cycle	Fresh cycle	T-test
Total cycles	394	243	
Patient's age at ET	36.8 ± 4.0	36.7 ± 4.0	NS
Oocyte's age	36.5 ± 4.0	36.7 ± 4.0	NS
FSH	6.5 ± 3.3	5.9 ± 3.0	P=0.05
AMH	3.7 ± 5.9	3.3 ± 2.9	NS
Endometrial Thickness at transfer (mm)	9.1 ± 2.0	9.4 ± 2.2	p<0.05
Pregnancy Rates	75.5% (289/383)	65.4%(159/240)	p<0.05
Clinical Pregnancy Rates	62.5% (235/376)	53.1%(127/239)	p<0.05
Multiple Pregnancy Rates	1.7% (4/235)	1.6%(2/127)	NS
Miscarriage Rate	27.0% (78/289)	29.6%(47/159)	NS

Conclusions:

In one of the largest studies to date, a euploid SET during a frozen/thaw cycle showed significantly improved pregnancy and clinical PR compared to embryo transfer in fresh cycles. Single embryo transfer significantly reduces the incidence of multiple gestation and improves maternal and neonatal outcomes. An optimal outcome is achieved by the performance of a SET in FET cycles.

Support:

None