Ultrasound study of embryo-fetal growth and uterine perfusion at 5-14 weeks in pregnancies resulting from transfer of blastocysts

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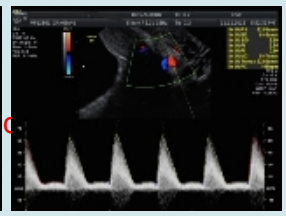
AIM OF THE STUDY

Assisted reproductive technology is associated with increased obstetric complications due to abnormal placentation. This is probably due to an altered endometrial development secondary to hormonal treatments required for ovarian stimulation. Better obstetrical outcomes were reported in frozen-thawed embryo transfer without ovarian stimulation. The aim of this study was to evaluate embryo-fetal growth and uterine perfusion in the first trimester of pregnancies obtained from transfer of fresh, frozen and frozen after preimplantation genetic diagnosis/screening blastocysts (PGS/PGD).

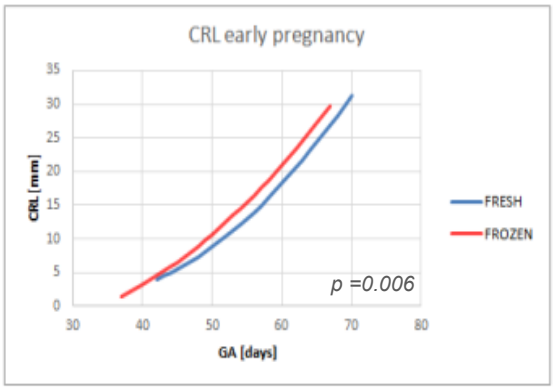
METHODS

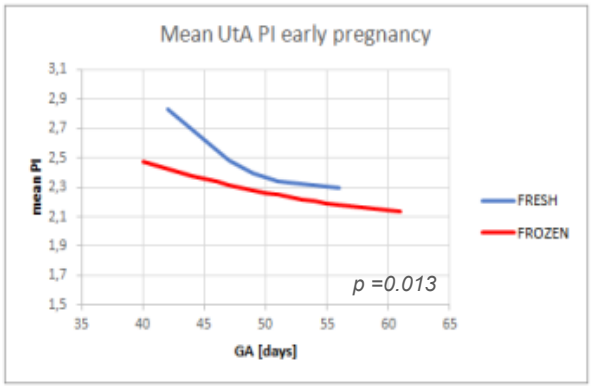
- Prospective study of 155 IVF/ICSI pregnancies from transfer of fresh, frozen-thawed blastocysts with or without PGS/PGD.
- Ultrasound evaluations at 5-9 and at 11-13 weeks were performed with crown-rump length (CRL) and uterine artery Doppler PI (UtA PI) measurements. The method was transvaginal at 5-9 and transabdominal at 11-14 weeks. Aneuploidies and major malformations were excluded.
-The sonographic parameters were compared using both a univariate and a multivariable linear regression analysis corrected for gestational age

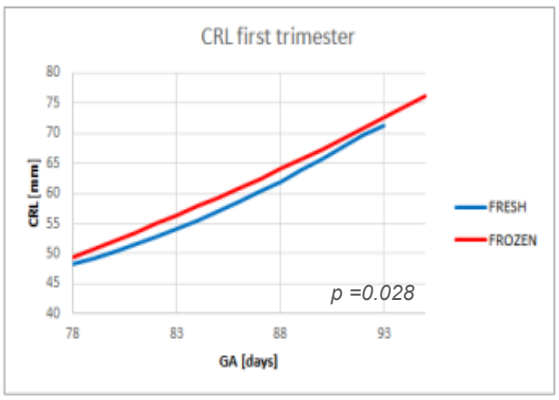


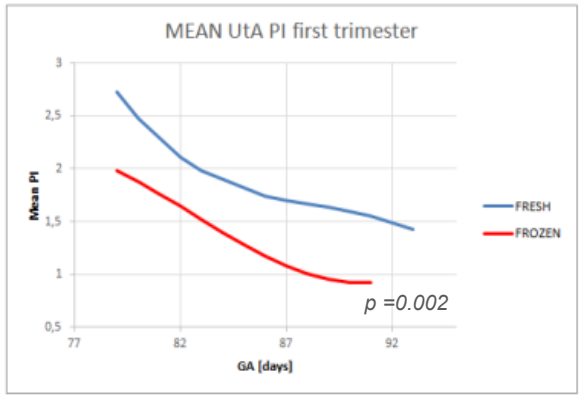
RESULTS

Patients'characteristics	Fresh blastocyst (N=48)	Frozen blastocyst (n=84)	PGS/PGD blastocyst (N=23)	P-value
Maternal age at pick up (mean)	35.5 ± 5	34± 7	36.8±5	0.04
BMI	21.68±4.87	21.41±3.76	20.8±3.08	0.916
Cigarette smoking	11 (22.9%)	13 (15.4%)	1 (4.3%)	0.134
Nulliparity	43 (89.5%)	65 (77.3%)	19 (82.6%)	0.214
N.of oocytes	9±6	12±7	12±7	0.02
Progesteron peak	0.9±0.7	1.1±0.8	1.57±1.5	0.012
Estrogen peak	2003±991	2377±2026	2782±1786	0.02
ICSI	42 (87.5%)	69 (82.1%)	23 (100%)	0.08
Low-dose aspirin intake	3 (6.2%)	14 (15.4%)	5 (21.7%)	0.055









CONCLUSIONS

Embryo-fetal growth is greater and uterine perfusion is better in frozen-thawed than in fresh blastocysts' group from very early gestational age, supporting the hypothesis of an altered placentation in fresh cycles IVF/ICSI pegnancies. No differences were found in the group with PGS/PGD which does not seem to alter utero-placental circulation and embryonic development.