

Cumulative live birth rate after preimplantation genetic screening in repeated implantation failure: is there still a place for replacing genetically uncreened embryos?

Devesa M, Coroleu B, Parriego M, Coll LI, Martinez F, Rodriguez I, Barri PN.

Department of Obstetrics, Gynecology and Reproductive Medicine. Hospital Universitario Dexeus. Barcelona. Spain.

Introduction

- Embryo aneuploidy is a paramount factor in repeated implantation failure (RIF) but the benefit of preimplantation genetic screening (PGS) is still controversial.
- The few RCT's assessing PGS in RIF include blastomere biopsy and FISH analysis. A non-randomized trial with trophoectoderm biopsy and comprehensive chromosome screening focused on implantation and pregnancy instead of moving on towards cumulative ongoing / livebirth rates.

Study question

What is the cumulative ongoing pregnancy [>20 wk.] or live birth rate after PGS with trophoectoderm biopsy and aCGH analysis in RIF?

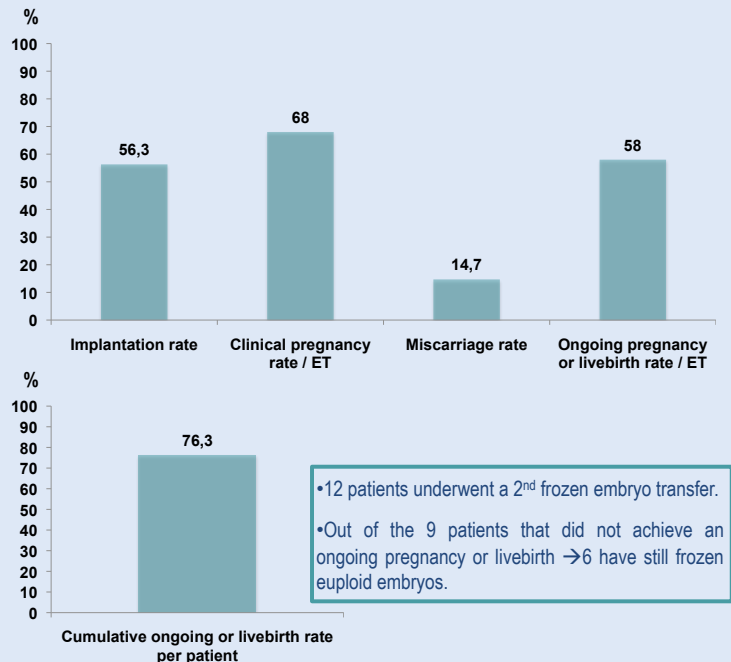
Material and Methods

- Retrospective study of 38 couples with RIF [no implantation after embryo transfer (ET) of at least 4 D3 embryos or 2 blastocysts of good quality].
- Exclusion criteria: age ≥ 39 years and known potential causes of RIF [abnormal karyotype, thrombophilia, autoimmune disorders, uterine abnormalities, hydrosalpinx, severe male factor].
- 19 couples underwent more than 1 stimulation in order to minimize the risk of not having euploid embryos (mean number of stimulations: 1.6 ± 0.7 , 84% involved oocyte banking).
- Trophoectoderm biopsy was performed at blastocyst stage. Comprehensive chromosome screening was done with aCGH analysis.
- 50 frozen ET were carried out: 8 in a natural cycle (16%) and 42 in an artificial cycle (84%).

Results

Patients' characteristics and stimulation results	
Age*	35.5 \pm 2.4
No. of previously transferred embryos*	6 \pm 2.7
No. of inseminated oocytes / patient*	15.2 \pm 5.3
Fertilization rate (%)	79.4
Blastulation rate (%)	53.1
No. of biopsied blastocysts / patient*	6.4 \pm 3.5
Global euploidy rate (%)	52.4
Patients with euploid embryos (%)	38 (100)
- euploid embryo obtained in 1 st cycle	29 (76)
- euploid embryo NOT obtained in 1 st cycle	9 (24)
Embryo transfer cycles (n=50)	
No. of transferred embryos*	1.4 \pm 0.5
- SET (%)	58
- DET (%)	42

* results expressed as mean \pm SD



Conclusions and wider implications of the findings

- According to our results, PGS should be offered in RIF patients. Furthermore, should embryo euploidy be a prerequisite to be considered in a future RIF definition?
- Other factors should be identified in RIF patients that don't succeed after ET of euploid blastocysts and mosaicism cannot be ruled out.