Human testicular sperm vitrification and storage through Sperm vitrification device versus conventional slow freezing cryopreservation : a prospective randomized sibling oocyte study

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Introduction

In order to avoid iterative testicular surgery, an efficient and validated cryopreservation method of testicular sperm retrieved by microTESE followed by ICSI in asynchronous procedures can be proposed for men suffering from azoospermia. Testicular sperm vitrification has been recently used as an alternative to slow freezing technique, but so far no prospective randomized studies with sibling oocytes were conducted to compare these techniques .

Study design

We conducted a single-center prospective randomized sibling oocyte study on 16 ICSI cycles in men suffering from azoospermia and with micro-TESE between January and December 2018.

Half of spermatozoa from positive testicular biopsies were frozen with each of 2 freezing methods: slow conventional and vitrification. Sibling MII oocytes were microinjected by sperm coming from these 2 methods. MII oocytes were allocated by randomization to one of the freezing groups, to achieve a balanced distribution. The sperm were thawed on the day of oocyte retrieval.

Comparisons were done using paired T-test and sign-test. P-value was considered significant when p < 0.05.

Results

Comparison of patients demographics, cycles characteristics and outcomes (%, number or mean ± SD)

	Slow freezing (n=64)	**Vitrification (n=68)**	**p**
Female age	33.6 ± 4.3		
Male age	35.7 ± 3.7		
Female BMI	22.3± 2.2 kg/m2		
Fertilization rate(%)	53.9	67.1	NS
Blastulation rate (%)	43.9	50	NS
Duration of microinjection (min)	29.7	7.8	< 0.05

The choice of transferred embryos was based on the embryonic morphology, 80% of transferred embryos were obtained from spermVD group and yielded a 62.5% pregnancy rate.

Conclusion

These preliminary results need to be confirmed by a large trail with possible focus on non-obstructive azoospermia cases where the amount of spermatozoa is low, the synchronous procedure often recommended, and where SpermVD might be an accurate device for convenient asynchronous microTESE planning. The spermVD device is an efficient and safe carrier and seems to be appropriate for the asynchronous preservation of a small number of spermatozoa allowing us to plan asynchronous micro TESE before oocyte retrieval and perform rapidly safe delayed ICSI.

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