Comparison of two sperm freezing protocols to preserve human sperm quality

King's Fertility

M Paul, E Gallagher, A Mania and I Sarris

1. INTRODUCTION

Semen cryopreservation is a routine process within the ART laboratories that depends greatly on the survival and usability of the sperm cells after freezing. Survivability of sperm cells is affected by cryopreservation as it causes sperm cryo damage.

2. MATERIALS AND METHODS

This is a prospective study where two different, sperm freezing media (SpermFreezeTM , FertiPro N.V., Belgium and Freezing Medium- TEST Yolk Buffer- TYB, FUJIFILM Irvine Scientific, USA) were used. Semen samples were obtained from normozoospermic (N= 23) or suboptimal (N=7) patients upon receiving a written, informed consent. All samples were collected by masturbation after 2-7 days* (*N=1 10 days) of abstinence period.

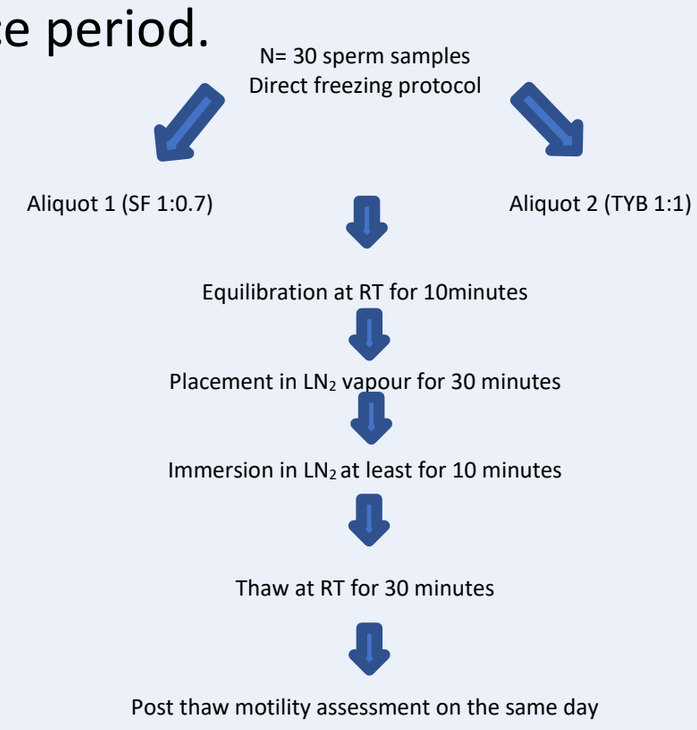

FIGURE 1. Cryopreservation protocols

Total motility (A+B+C) and progressive motility (A+B) were assessed by the same scientist. Motility was assessed according to the World Health Organisation criteria 2010 prior and post cryopreservation.

3. RESULTS

The paired Student's t-test was used to compare the two sperm freezing media. Differences were significant at $p < 0.05$.

Statistical analysis of the data showed that there is a significant difference in total motility post thaw using SF versus TYB (44±12.49% and 48.7±11.95%; p= 0.0000032 <0.05, respectively). The same applies to the progressive motility in group SF versus TYB (29.87±13.79% and 35.33±13.64%; p= 0.0000041 <0.05, respectively).

The data shows that, both total motility and progressive motility were significantly lower while using SF versus TYB.

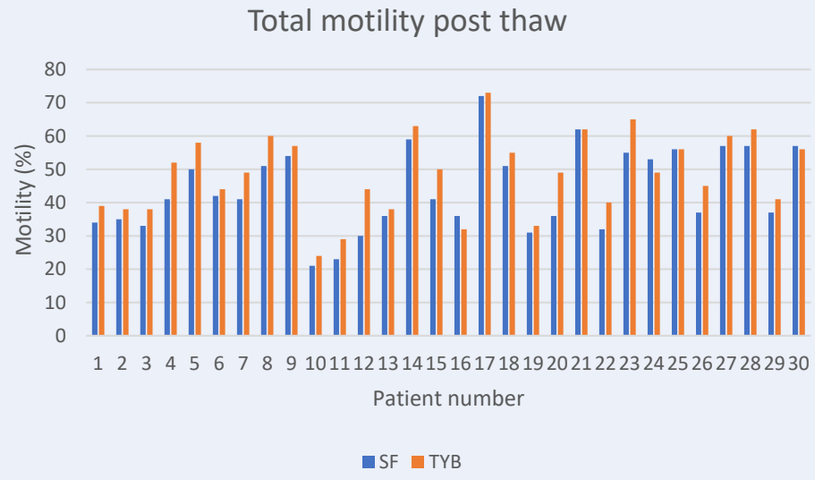

FIGURE 2. Total motility post thaw

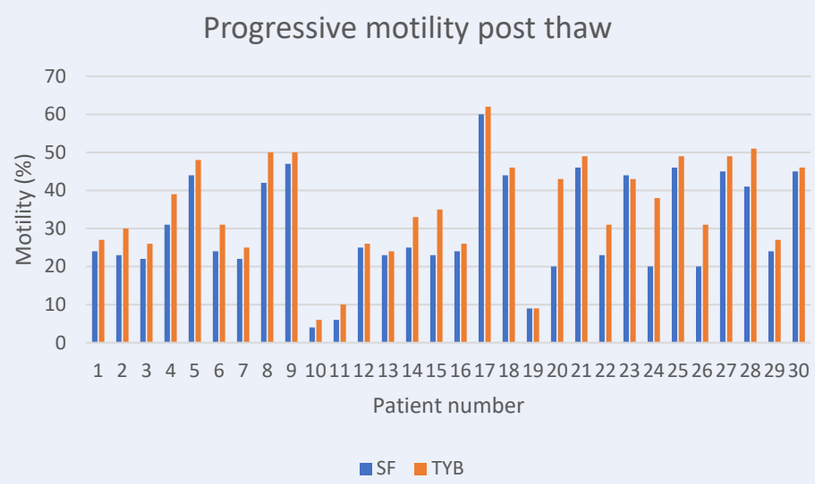

FIGURE 3. Progressive motility post thaw

4. CONCLUSIONS

The aim of this study was to evaluate effect of two freezing media on sperm quality by assessing post thaw motility. This study represents data that confirms that post thaw sperm motility was significantly higher in the TYB group compared to SF group. As sperm cryopreservation in an important technique in ART, there is a need for better understanding of the sperm cryobiology and resulting cryoinjury to sperm cellular components.

5. REFERENCES

Brace N., Kemp R., Snelgar R. (2012) 'SPSS for psychologists. 5th Edition'. Palgrave Macmillan.

Elder K., Dale B. (2020) 'In-Vitro Fertilization. Fourth Edition'. Cambridge University Press.

Fabozzi G., Starita M.F., Rega E., Alteri A., Colicchia A., Piscitelli C., Giannini P. (2016) 'Evaluation of the Efficiency of two different freezing media and two different protocols to preserve human spermatozoa from cryoinjury'. International Journal of Reproductive Medicine, Vol. 2016, 6 pages.

https://www.irvinesci.com/media/IrvineScientific/Resources/40/40680_freezing_medium_90128.pdf

https://fertipro.com/inserts/Spermfreeze.pdf