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Poster Presentations

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Trehalose attenuates detrimental effects of freeze-drying on human sperm parameters

Shahmoradi E¹, Baheiraei N², Halvaei I¹.

1. Department of Anatomical Sciences, Faculty of Medical Sciences, Tarbiat Modares University, Tehran, Iran.

2. Tissue Engineering and Applied Cell Sciences Division, Department of Hematology, Faculty of Medical Sciences, Tarbiat Modares University, Tehran, Iran.

Email: ihalvaei@modares.ac.ir

Background: Freeze-drying is one of the sperm preservation methods leading to preserve sperm genetic material for a long period.

Objective: Our main goal was to evaluate the effect of trehalose in freeze-drying method on sperm motility, viability, morphology, acrosome, and DNA integrity compared with standard protocol without trehalose.

Materials and Methods: Twenty-five normozoospermic samples were included in this prospective study. Direct swim-up was used for sperm

preparation. Experiment was performed on freeze-dried samples containing trehalose (0.2 M) and the results were compared to that of without trehalose. The sperm parameters including count, motility, morphology, viability, acrosome reaction, DNA denaturation, and DNA fragmentation were evaluated before and after freeze-drying in both groups.

Results: The spermatozoa were totally immotile after freeze-drying in both groups. Sperm viability, acrosome reaction, and non-denatured sperm DNA were significantly higher in the trehalose group in comparison with that of without trehalose group. Non-fragmented sperm DNA showed an increasing trend in the trehalose group compared to the without trehalose group. While freeze-drying significantly reduced normal morphology, the addition of trehalose did not affect this parameter.

Conclusion: The results of this study showed that trehalose can attenuate the detrimental effects of freeze-drying on human sperm parameters.

Key words: Lyophilisation, Cryodesiccation, Sperm.