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Poster Presentations

P-24

The effect of alpha lipoic acid on human sperm cryopreservation

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Background: Nowadays, infertility problems are dramatically elevating around the world. In this regard, assisted reproductive techniques are developing productively. The cryopreservation technique of sperm cells is one of the common daily processes in infertility centers. However, the freezing-thawing process induces the production of reactive oxygen species (ROS) which is strongly harmful to sperms and reduces their quality post thawing procedure. Accordingly, the addition of some antioxidants to the sperm freeze medium is one way to come over this problem.

Objective: In the current study, considering the

therapeutic effect of alpha-lipoic acid (ALA) on improving sperm parameters in the literature, we decided to investigate its impact on preserving freeze-thaw sperms from ROS damages.

Materials and Methods: 20 normozoospermic samples were obtained from the Isfahan Fertility and Infertility Center. Different concentrations of ALA (0, 0.05, 0.1, 0.2, 0.4, 0.8, and 8 mM) were added to the sperm freeze medium to gain the best concentration. With the optimum concentration, its' protective impact on sperm motility and DNA fragmentation was investigated.

Results: 0.2 mM of ALA showed the best effect on sperm motility. Consequently, assessment of sperm DNA damage was carried out before and after the thawing procedure with and without using the optimal concentration of ALA. Our result indicated a significant reduction in DNA damage at the presence of ALA (0.2 mM, $p < 0.05$).

Conclusion: ALA could have a cryoprotective effect on sperm motility and DNA damage through its' antioxidant capacity and its ROS scavenging capacity.

Key words: Alpha lipoic acid, Freez-thawing, DNA damage.