9th Yazd International Congress and Student Award on Reproductive Medicine with 4th Congress of Reproductive Genetics

Poster Presentations

P-79

Evaluating the role of alginate on human sperm cryopreservation

Feyzmanesh S[1], Baheiraei N[2], Halvaei I[3].

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

Email: ihalvaei@modares.ac.ir

Background: Sperm freezing is currently a widely used method to preserve sperm fertility in infertility clinics. During this process, sperm cells undergo considerable damage, including membrane, acrosome area, DNA integrity. Consequently, several ways have been developed to protect sperm cells against freezing damage, one of which is encapsulating sperm cells using alginate.

Objective: We aimed to evaluate the impact of alginate on human sperm motility, viability, morphology, acrosome reaction, and DNA integrity during freeze-thawing process.

Materials and Methods: Twenty-five human normozoospermic samples were included in this study. The sperm parameters were examined before and after direct swim-up. Eventually, the samples were divided into two groups of containing 1% alginate and the control group lacking alginate. The samples were then frozen by rapid freezing, and after melting, the sperm parameters were examined in terms of number, motility, morphology, viability, acrosome reaction, and DNA denaturation and fragmentation.

Results: All the measured parameters were significantly reduced following freezing, compared to their measurement before freezing. Motility was shown to be noticeably lower in the alginate group, while viability, morphology and DNA fragmentation was not significantly different between alginate and control group. Acrosomal integrity and DNA denaturation were significantly increased in the alginate group in comparison with the control.

Conclusion: Based on the obtained results, alginate might be capable of inhibiting premature acrosome reaction as well as preserving DNA against denaturation caused by rapid freezing.

Key words: *Sperm DNA, Alginate, Rapid freezing.*