The survey effect of L-proline on human normozoospermic parameters and chromatin integrity after cryopreservation

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Introduction

Sperm cryopreservation as routine technique in Assisted Reproductive Technique (ART) labs has detrimental effects on spermatozoa. Various methods have been introduced to improve it. The aim of this study was to investigate the effects of L-proline supplementation in cryopreservation medium on human sperm during cryopreservation.

Results

Cryopreservation significantly decreased all sperm parameters (p<0.05). Four mmol/L L-prolin significantly improved progressive motility and viability (p<0.05) and non-significantly normal morphology in treated sperm. MDA and ROS levels significantly diminished in samples were cryopreserved by four mmol/L L-prolin supplemented cryopreservation media (p<0.05). Also, it significantly increased TAC level. Also, the result showed that chromatin damages (AB, TB, CMA3) significantly improved in samples were cryopreserved by four and two mmol/L L-prolin supplemented cryopreserved by four and two mmol/L L-prolin supplemented cryopreserved in samples were cryopreserved by four and two mmol/L L-prolin supplemented cryopreserved in samples were dose dependent.



Methods

In this study, 30 semen samples were collected form normozoospermic men. Cryopreservation media were supplemented with different concentration of L-proline (0, 1, 2 and 4 mmol/L). The semen samples with the concentrations were cryopreserved. After thawing, sperm parameters (motility, morphology and viability), sperm chromatin integrity (aniline blue (AB), toluidine blue (TB), sperm chromatin dispersion test (SCD) and Chromomycin A3 (CMA3)), reactive oxygen species (ROS), and total antioxidant capacity (TAC) and malondialdehyde (MDA) levels were evaluated.

Conclusions

The results support that the usage of L-proline supplemented cryopreservation media to improve sperm parameters, chromatin integrity after cryopreservation. Also, it improved oxidative stress of spermatozoa after cryopreservation.



The effects of L-proline on sperm motility



The effects of L-proline on sperm viability



The effects of L-proline on sperm SDF

L-prolin

The effects of L-proline on sperm MDA



The effects of L-proline on sperm TAC



The effects of L-proline on sperm ROS

