

ULTRASTRUCTURAL STUDY OF HUMAN MATURE OOCYTES AFTER VITRIFICATION

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Introduction: Oocytes cryopreservation certainly represents one of the most attractive developments in the field of assisted reproduction, but it is still an open problem because of gametes structural sensitivity to the cooling and freezing process and exposure to cryoprotectants. The aim of this study was to determine ultra structural changes that results from vitrification and rewarming of human oocytes in metaphase II stage of meiosis (MII) or mature stage.

Method and materials: This experimental study was done on 35 denuded MII human oocytes had been yield from patients which had the range of ages 29 -42 years that referred to Dr Rostami infertility clinic center in shiraz,Iran. Oocytes had been divided in two groups: control (n=15) and vitrified group (n=20). Freezing period was about 2-3 months and was done as tree stepwise vitrification and four step warming based on Dr Alhassani protocol. All oocytes were processed for transmission electron microscopy as single cell specimen. The EM images were described qualitatively.

Results: Our finding showed that vitrification process had not serious damage on oocytes cellular structure, although some cytoplasmic changes such as thickening and heterogenicity of zona, moderate disruption of microvilli, and hypertrophy of mitochondria in older cases were seen but they can be ignorable because we could see the same changes in control group as well.

Conclusion: Vitrification is suitable method for cryopreservation of human oocytes due to fewer damages to cellular organization.

Key words: mature oocyte, human, vitrification, ultrastructure