Title: Reduction in cytoskeleton damage by incubation of oocytes in peritoneal fluid supplemented with L-Carnitine
Objective: We have previously demonstrated the effect of oxidative stress (OS) on the oocytes microtubules and chromosomes in vitro. L-Carnitine (LC) has antioxidant activity that combines both free radical scavenging and metal-chelating properties. The objective of our study was to examine the protective effect of LC in reducing endometriosis induced cytoskeleton damages.

Design: Prospective study.

Materials and Methods: 80 frozen metaphase II mouse oocytes were divided into 3 groups (see table). Oocytes were fixed, and immunohistochemical staining was done to evaluate the alterations in the microtubules. Propidium iodide was used for chromosomal staining. Microtubules and chromosomes were examined by fluorescent and confocal microscopy. Modified scoring system was used (Choi et al. 2007). For microtubules a scores of 1 and 2 = normal; score 3 = slightly abnormal, and score 4 = missing. For the chromosomal alterations: Scores 1 and 2 = normal; 3 = slightly abnormal and 4 = totally abnormal.

Results: The following table summarizes microtubules and the chromosomes scoring among the 4 groups

Conclusions: L Carnitine has a strong antioxidant effect on mouse oocytes. It minimizes the damage of the microtubules and the chromosomes caused by oxidants in the peritoneal fluid of endometriosis patients. L Carnitine can be used in various ART procedures to minimize oxidative stress and improve IVF outcome.

Support: None