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Are you a fellow in training in an American Board of Obstetrics and Gynecology

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Awards:

In-Training Awards for Research

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Title: Endometriosis induced alterations in the mouse oocyte cytoskeleton

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Objective: Oxidative stress (OS) is involved in the pathophysiology of endometriosis. OS induces alterations in the cytoskeleton (microtubules and chromosomes) of the oocyte. Disruption of the cytoskeleton may result in failure of the second meiotic division and consequently fertilization and implantation processes. We sought to study the alterations in the cytoskeleton and chromosome alignment of metaphase II oocytes incubated in the peritoneal fluid of patients with endometriosis..

Design: Prospective controlled study

Materials and Methods: Mature frozen metaphase II mouse oocytes were divided into 2 groups. Group 1: incubated with PF of patients with endometriosis + HTF (50%:50% vol:vol). Group 2: incubated with PF of patients with tubal ligation (controls) + HTF (50%:50% vol:vol). Oocytes were incubated for 1 hour. Immunohistochemical staining was used to evaluate the effect on oocyte microtubule (MT) morphology and chromosomal (CH) alignment. Oocytes were fixed in 3 % formaldehyde and incubated with anti α -tubulin monoclonal antibody for microtubule staining followed by FITC labeled anti-mouse Ig G antibody. Propidium iodide was used for chromosomal staining. Microtubules and chromosomes were examined under a fluorescent and confocal microscopy. Scores of 1-4 were assigned for both microtubule alterations and changes in chromosomal alignment. Scores of 1-2 were considered as normal and 3-4 as abnormal (Choi et al, Fertil Steril, 2007).

Results: Oocytes that were incubated in PF of patients with endometriosis had significantly higher scores for both microtubules and chromosomal changes compared to the control group (see Table).

Conclusions: Peritoneal fluid of patients with endometriosis results in microtubule and chromosomal changes. These alterations (microtubule and chromosomal) in poor quality oocytes may be involved in the failure of fertilization or implantation in patients with endometriosis.