

Abstract

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Lipid peroxidation and vitamin E in serum and follicular fluid of infertile women with peritoneal endometriosis submitted to controlled ovarian hyperstimulation: a pilot study.

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OBJECTIVE: To assess the level of lipid peroxidation (LP) and vitamin E in the follicular fluid and serum of infertile patients, with or without endometriosis, who were submitted to ovulation induction for assisted reproduction procedures.

DESIGN & SETTING: Prospective study. Assisted conception unit, university hospital.

PATIENT(S): Infertile patients 20 to 38 years of age were selected prospectively and consecutively and were divided into the endometriosis group (17 patients with pelvic endometriosis) and the control group (19 patients with previous tubal ligation or male factor and without endometriosis).

INTERVENTION(S): Peripheral blood samples were collected on D1 (before the beginning of the use of gonadotropins), D2 (day of hCG administration), and D3 (day of oocyte retrieval). On D3, follicular-fluid samples free from blood contamination also were collected and stored.

MAIN OUTCOME MEASURE(S): Lipid peroxidation was assessed by malondialdehyde quantification by spectrophotometry, and measurement of vitamin E was performed by HPLC.

RESULT(S): On D1, no significant difference in LP was observed between groups. However, vitamin E levels were significantly higher in the control group. On D2, LP levels were significantly higher in the endometriosis group compared with in the control group, and vitamin E levels continued to be significantly higher in the control group. On D3, there was no significant difference in serum and follicular-fluid levels of LP and vitamin E between groups. However, on D3, vitamin E levels were found to be significantly higher in serum than in follicular fluid in both groups, whereas malondialdehyde levels were significantly lower in follicular fluid than in serum only in the control group.

CONCLUSION(S): Before the beginning of ovulation induction, a significant decrease in vitamin E was observed in patients with endometriosis, perhaps because antioxidants are consumed during oxidation reactions. After ovulation induction with exogenous gonadotropins, the group of patients with endometriosis not only presented increased lipid peroxidation but also maintained lower vitamin E levels than the control group, a fact that hypothetically could compromise oocyte quality in endometriotic patients. However, on the day of oocyte retrieval, both serum LP potential and vitamin E levels were found to be similar in the two groups.

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