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TITLE

OXIDATIVE STATUS OF FOLLICULAR FLUID OF INFERTILE WOMEN UNDERGOING IN VITRO FERTILIZATION ASSESSED BY A NEW METHOD

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ABSTRACT

Context: Recently, much attention is paid to the role of oxidative stress in female reproduction, in particular, the role of local oxidative stress in follicles in oogenesis. Objective: To propose a new luminescence method for assessing oxidative stress in follicular fluid of women with poor ovarian reserve and tubal factor infertility undergoing in-vitro fertilization (IVF) and correlate the results with IVF outcome. Methods: Quantitation of antioxidant capacity of follicular fluid (total and after treatment by uricase) was performed with chemiluminescence with 2,2'-azobis(2-amidinopropane) dihydrochloride. Part of oxidized albumin was determined with tryptophan fluorescence. The results were compared between both groups using Mann-Whitney test. A p-value of <0.05 was considered significant. Patients: Follicular fluid was collected during oocyte retrieval from 16 women with poor ovarian reserve (group I) and 16 women with tubal factor infertility (group II). Intervention: Transvaginal ultrasound-controlled follicle puncture. Main Outcome Measures: IVF outcome measures include oocyte fertilization, embryo cleavage, and clinical pregnancy. Results: Women in both groups were comparable in age, body mass index and duration of infertility. There was a significant difference between total antioxidant capacity of fluid of follicles with mature oocytes and empty follicles (empty follicle syndrome, EFS) (20,0 micromole of ascorbate vs. 7,2 micromole) as well as capacity of uricase-treated samples (5,0 micromole of ascorbate vs. 3,5). Oxidized albumin was significantly higher in follicular fluid from women with EFS (15% vs. 3%). Conclusions: In EFS, the antioxidant capacity of follicular fluid is lowered significantly, and the part of oxidized albumin is elevated significantly, indicating the role of oxidative stress in pathogenesis of this syndrome.

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