

The Relationship between Plasma Antioxidant Enzymes Activity and Sex Hormones during the Menstrual Cycle

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Abstract

Background and objective: There is increasing evidence for the role of oxidative stress in female reproductive tract. The purpose of this study was to determine the activity of antioxidant enzymes during menstrual cycle. In addition, the relationship between activity of antioxidant enzyme and sex hormones was evaluated.

Materials and methods: In this study the activity of superoxide dismutase, glutathione peroxidase, glutathione reductase, catalase and total antioxidant capacity during the menses, follicular and luteal phases of the menstrual cycle in twenty women with regular menstrual cycle were studied. Furthermore, the correlation between activity of antioxidant enzymes and estradiol, progesterone, LH, FSH and testosterone were evaluated.

Results: There was no significant difference between activity of superoxide dismutase, glutathione peroxidase, glutathione reductase, catalase and total antioxidant capacity during the menses, follicular and luteal phases of the menstrual cycle ($P>0.05$). We found significant correlation, in luteal phase, between superoxide dismutase and FSH ($P<0.05$, $r=0.44$) and LH ($P<0.05$, $r=0.54$). Also it is observed between LH and glutathione peroxidase ($P<0.05$, $r=0.44$).

Conclusion: Based on the results, there is no significant difference between antioxidant enzymes and total antioxidant capacity of plasma during menstrual cycle. In other words, physiologic system of women with regular menstrual cycle can protect body against oxidative stress and this is probably performed due to action of FSH and LH hormones.

Keywords: Antioxidants; Menstrual cycle; Sex hormones