

Evaluation of antioxidant enzymes and lipid peroxidation before and after ovariohysterectomy in queen

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Abstract

Estrogens are known to have antioxidant properties and their deficiency after ovariohysterectomy (OVH) predisposes the body to increased reactive oxygen species (ROS) production. Occurrence of oxidative stress following OVH in dogs and rats has been demonstrated in previous studies. However, no investigations have been done in relation to changes in the activity of antioxidant enzymes and lipid peroxidation, especially in cats. The aim of this study was to evaluate the activity of some antioxidant enzymes, malondialdehyde (MDA) concentration as an indicator of lipid peroxidation and 17-beta estradiol in serum before and one month after OVH. In this study, 12 cats aged 2 to 5 years that were not in the estrous cycle were used. Then OVH surgery was performed. Blood samples were taken before and one month after surgery and the activity of superoxide dismutase (SOD), glutathione peroxidase (Gpx) and catalase (CAT) enzymes, the concentration of MDA and 17-beta estradiol in serum were measured. The activity of SOD, Gpx, CAT and MDA concentration increased after OVH compared to before which was statistically significant. The concentration of 17-beta estradiol decreased postoperatively compared to before, which was statistically significant. OVH did not cause oxidative stress with no significant change in antioxidant enzymes and lipid peroxidation in cats after one month, although 17-beta estradiol showed a significant decrease. More studies are needed to determine further dimensions.

Key words: Ovariohysterectomy, Antioxidant enzymes, Lipid peroxidation, queen, Oxidative stress

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