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## **EFFECT OF OOPHORESALPINGOHYSTERECTOMY ON SERUM ANTIOXIDANT ENZYMES IN DOGS**

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**S**tatement of the Problem: Oxidative stress (EO) is the consequence of a deficiency of natural protective substances against free radicals (RL) and/or excessive exposure to them or to their generating agents. There are few studies on the evaluation of oxidant-antioxidant status after Oophoro Salpingohysterectomy (OSH) in dogs. Estrogens have antioxidant properties per se due to their structural characteristics; moreover, they have influence and interact with antioxidant enzymes and adipose tissue. Here we determined the effect of OSH on antioxidant enzymes in serum and also quantified morphological changes in subcutaneous adipocytes. 12 female dogs between 1 and 5 years of age, classified as body condition 3 according to weight and body fat percentage (%GC) were studied. Lateral OSH was performed and subcutaneous adipose tissue was taken to determine morphological changes and cell number under basal conditions and sixth month after OSH. Concentrations of cholesterol, triglycerides, glucose, insulin, HOMA index, 17 $\beta$ -estradiol(17 $\beta$ -E2), extracellular Super Oxide Dismutase(SOD-ec), peroxidases, Glutathione Peroxidase (GPx),

Glutathione-S-Transferase (GST), Glutathione Reductase (GR), glutathione (GSH), lipid peroxidation (LPO), capacity antioxidant total(TAC), vitamin C and nitrates/nitrites ratio(NO<sub>3</sub>-/NO<sub>2</sub>-) were determined in serum in basal conditions and one and six months after the surgery. The activity of the enzymes SOD-ec, peroxidases, GSH, GPx and GST showed significant differences ( $p \leq 0.05$ ), LPO was increased and vitamin c decreased ( $p=0.03$ ) after OSH. The concentration of estradiol (17 $\beta$ -E2) showed a tendency to decrease six months after OSH. An increase in the %GC and hypertrophy of the subcutaneous adipose tissue was observed after OSH from the first month and was further accentuated at six months ( $p=0.001$ ). The results suggest that the decrease of 17 $\beta$ -E2, as a consequence of OSH, alters the activity of antioxidant enzymes in serum which, in turn, increase LPO and decrease the TAC. These changes were associated with an increase in body weight and hypertrophy of subcutaneous adipose tissue.

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