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## Effects of vitamin e and selenium on surgical stress and lipid peroxidation in dairy cows

**Pavol Mudroň**

University of Veterinary Medicine and Pharmacy in Kosice, Slovakia

The present trial was aimed to study the effects of vitamin E and selenium treatment on stress and lipid peroxidation in dairy cows stressed by omentopexy. Twenty Holstein-Frisian dairy cows, admitted for treatment of left abomasal displacement, were randomly divided into two groups. Ten hours before surgery 6 g of DL- $\alpha$ -tocopheryl acetate and 67 mg of natrium selenite (Vitaselen®) were administered subcutaneously to 10 cows; the control animals (n=10) received an equivalent volume of injectable water (40 ml). Abdominal surgery (omentopexy) was performed in a standing position 16 – 24 hours after admission. Blood samples were drawn: before vitamin E/Se injection, just prior to surgery, immediately after surgery, then 15, 30, 60 minutes, and 2, 5, 10, and 24 hours after surgery. The plasma  $\alpha$ -tocopherol was determined by HPLC using a fluorescent detector. The plasma selenium levels were determined by fluorometric detection, plasma TAC was analysed spectrophotometrically, and TBARS spectrofluorometrically. The serum cortisol was determined by chemiluminiscent enzyme immunoassay. Statistical analysis was carried out by a two-factorial analysis of variance (one repeated factor: time, one grouping factor: treatment). The injection of vitamin E and selenium produced a rapid rise ( $p<0.05$ ) in blood

$\alpha$ -tocopherol and selenium concentrations. Two-way ANOVA did not show significant treatment effect on plasma TBARS and TAC in our trial. In contrast, a certain effect of the treatment could be found on serum glucose and WBC count ( $p<0.05$ ). Serum cortisol concentrations increased in both groups after surgery ( $p<0.05$ ) and two-way ANOVA revealed significant effect of treatment on cortisol levels ( $p<0.05$ ). In conclusion, the administration of Vitamin E and selenium resulted in weaker cortisol response in experimental animals, however, no significant effects of a single vitamin E/Se injection on blood TBARS were found.

### Biography

Pavol Mudroň graduated as a DVM at the University of Veterinary Medicine (Kosice, Slovakia) in 1985. In 1996 successfully defended his PhD thesis on "Role of vitamin E in immune response" In 1998 he became Associated Professor and in 2006 Diplomat of the European College of Bovine Health Management. At the moment he is full professor and head of the Clinic of Ruminants at the University of Veterinary Medicine and Pharmacy in Kosice.

Pavol.mudron@uvlf.sk