The influence of selenium and vitamin E supplementation on cytological assessment of red blood cell line of bone marrow in fallow deer kept in captivity

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Abstract

Cytological evaluation of bone marrow smears stained by May-Grünwald Giemsa method was performed. The smears came from 20 fallow deer (Dama dama) 3 days old divided into 2 groups each consisting of 10 animals. The experimental group (E) received intramuscularly selenium and vitamin E at a dose of 3.0 ml (tocopherol acetate – 50 mg, sodium selenite – 0.5 mg, solvent - 1 ml) in the 3rd day of age. The control group (C) did not receive any supplementation or placebo. For hematological analyzes blood was collected three times: on 0, 15th and 25th day of the experiment. Serum concentration of selenium and vitamin E was determined using high performance liquid chromatography and glutathione peroxidase activity (GSH-Px) by kinetic method. On the 15th day after supplementation, a statistically significant increase in the percentage of erythroblastic cell line was observed in bone marrow smears. At that time, the increase in GSH-Px activity in the E group was also observed, reaching the value of 165.3 U/gHb, which was statistically significant. The percentage of proerythroblasts (8.23% in group E and 5.02% in group C) differed significantly between groups at the 25th day after supplementation. This study revealed that supplementation of selenium and vitamin E resulted in an increase in the number of erythrocytes to an average of 13.5 (˟ 10¹²/l) in the experimental group on 25th day with a significant increase in hemoglobin to 193 g/l in the experimental group.

Key words: bone marrow, hematopoiesis, erythroblast, selenium, vitamin E

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