Evaluation of bone marrow with particular consideration of the megakaryocyte lineage and coagulation profile in the pregnant fallow deer (*Dama dama*)

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Abstract

The aim of the study was to evaluate the megakaryocyte lineage of bone marrow and coagulation parameters in fallow deer during the last month of pregnancy. The animals were managed in the barn-feeding system. Twenty female fallow deer, aged 2-3 years, divided into 2 groups were used in the study. Group 1 comprised the females in the last month of pregnancy, and the non-pregnant females were used as the control. All the animals were clinically healthy. Coagulation parameters were measured in all the deer: thrombin time (TT), prothrombin time (PT), activated partial thromboplastin time (APTT), and plasma concentrations of fibrinogen, D-dimer, and antithrombin III. A quantitative assessment of bone marrow was carried out for the erythroblastic, myeloid, lymphoid, monocyte-macrophage, and megakaryopoietic cell lines. A detailed analysis of megakaryocyte lineage was performed after whole blood and platelet count.

There were no significant differences in the erythroblast, granulocyte, monocyte-macrophage and lymphoid systems between the animal groups. Thrombocyte count in the pregnant deer was lower than that found in the control group. Bone marrow smears revealed a slightly decreased megakaryocyte count, while the megakaryoblast and promegakaryocyte counts were unchanged. The analysis of coagulation parameters showed increased levels of fibrinogen, thrombin time, prothrombin time and activated partial thromboplastin time in the pregnant animals. The study suggested a hyperactivation of the coagulation system with a slight reduction in the megakaryocyte count in bone marrow, and a reduction in platelet count in peripheral blood at the end of pregnancy.

Key words: platelets, megakaryocyte, bone marrow, coagulation profile, fallow deer

Introduction

In fallow deer, as well as in other animals, health screening is largely based on the assessment of haematological, biochemical and coagulation parameters (Vengust et al. 2002). Coagulation disorders are most often associated with inflammatory, parasitic, viral and bacterial diseases (Mackintosh et al. 2002). Other pathological factors responsible for coagulation disorders include blood loss due to injury, and poisoning...