

THE INFLUENCE OF RUMINAL BOLUS WITH SHORT-DISSOLVING TIME ON SELECTED BLOOD PARAMETERS IN HOLSTEIN-FRIESIAN COWS AFTER PARTURITION — PRELIMINARY RESULTS

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The aim of this preliminary study was to determine the influence of ruminal bolus with short-dissolving time on selected blood parameters in Holstein-Friesian cows after parturition.

Group of 6 healthy Holstein-Friesian cows during third pregnancy was chosen to participate in the study. The cows included in the experiment had to meet the following criteria: no record of hypocalcemia, single pregnancy and physiological parturition without human assistance before bolus administration. Cows received 2 ruminal boluses: first — up to 2 hours after parturition, second — 24 hours after the first. Blood samples were taken 5 times. First sampling occurred just before first bolus administration (0), second after 5 hours (5th hour), third during second bolus administration (24th hour), fourth 10 hours after second bolus administration (34th hour) and fifth 48 hours after first bolus administration (48th hour). Blood was collected from the tail vein using 1,2 mm needle into *Vacutainer* test-tubes with clot activator. The blood was centrifuged at 3000 rpm for 15 minutes to obtain the serum. The following parameters were determined: ASPAT, ALP, glucose, Na⁺, K⁺, Cl⁻, vitamin D₃ (25-OH), Ca, Mg, P. Obtained results were analyzed with *Statistica* software using Student's *t*-test to compare results of first to other samplings and ANOVA to determine the differences between all samplings.

Ruminal bolus administration appeared to significantly ($P \leq 0.05$) affect several analyzed parameters. It increased ($P \leq 0.05$) Ca and P concentrations, the activity of ASPAT — from 1,40 to 1,95 mmol/l, from 1,14 to 1,50 mmol/l and from 81,17 to 129,83 u/l during 48 hours respectively, and decreased ($P \leq 0.05$) the glucose concentration and the ALP activity — from 7,61 to 3,98 mmol/l and from 68 to 60,67 u/l during 48 hours respectively, even though all the obtained results oscillated around reference values for cattle. No statistically significant changes were observed in the concentration of electrolytes and vitamin D₃ (25-OH).

Fluctuations in the levels of determined blood parameters oscillating around the reference values may indicate the existence of interactions between the components of the bolus at the stage of absorption in the gastrointestinal tract and interactions between the components of the bolus and environment of the rumen itself. Ruminal boluses with short-dissolving time, due to their beneficial influence on some blood parameters including calcium concentration in serum, might be considered as a preventative measure for hypocalcemia in dairy cows after parturition. However, a more detailed study will be conducted in order to determine the most effective bolus administration protocol which will enable to make the most of the potential of such products.

Keywords: DAIRY COW, HYPOCALCEMIA, RUMINAL BOLUS