EFFECT OF FENOXIL-2- METHYL-2- PROPIONIC ACID ON KETOSIS, REPRODUCTION AND MILK YIELD IN TRANSITION DAIRY COWS

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Fatty liver and ketosis are frequent METABOLIC DISORDERS in dairy cows during transition period. The fenoxil-2- methyl-2-propionic acid (FMPA) is an activator of energy metabolism. The objective of this study was to evaluate the effect of FMPA 10 d prepartum, and postpartum on frequency of ketosis, ovarian reactivity and milk yield. Fifty seven multiparous Holstein cows were divided into four groups. The groups

1(n=14) and
2 (n=14) had body condition score (BCS) above 4; BCS of the groups
3 (n=15) and
4 (n=14)
was between 3.25 and 3.75 at calving.

The solution of 50 mL FMPA was IM injected to cows of groups 1 and 3, 10 to 7 d prepartum and during 6 h postpartum. The groups 2 and 4 received at the same way 50 mL of 0.9% NaCl as placebo. Blood samples for biochemical profile were collected from all cows 10 d before calving without treatment, 2 d after treatment; postpartum at days 2, 10 and 21. At days 21, 24, 27, 30, 33 and 36 postpartum, blood samples were obtained for the determination of progesterone. Concentrations of fatty acids (FA), β-hydroxybutyrate (BHB), triacylglycerols (TG), cholesterol, total proteins, albumin and activities of aspartate aminotransferase (AST) and creatine kinase (CK) were determined in blood serum. Plasma progesterone indicated ovarian reactivity and presence of the first corpus luteum postpartum. Milk yield was registered daily during 60 days postpartum. Prepartum FA were 0.5 mmol/L without difference among all the groups (P>0.05). BHB was increased only at day 10 after calving in fat cows treated with FMPA (P< 0.04). In cows of groups 3 and 4 (BCS normal), BHB was increased moderately, not indicating subclinical ketosis. Other analytes (AST, CK, TP, TG, albumin and cholesterol) were in the range of reference values, indicating adequate integrity and function of liver. Cows of normal BCS treated with FMPA presented better milk production but without significant difference among four groups (P>0.05). Ovarian reactivity was present at day 21 in all groups of cows without significant difference. After application of FMPA, Group 3 of normal BCS presented more cows with ovarian reactivity. The preventive effect of FMPA was not observed in cows during transition period due to possible fast adaptation to negative energy balance or its short duration. The cows of normal BCS treated with FMPA had tendency to better milk production and ovarian reactivity.

Keywords: PPARs, ketosis, body condition, ovarian reactivity, transition cow