Selected biochemical blood compounds in cows with abomasum displacement

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Abstract

The aim of this study was to compare some blood biochemical indicators in cows with displacement of abomasum (DA) which recovered or died after treatment. Examinations were performed on 60 multiparous cows with left (L) or right (R) displacement and on 15 healthy herdmates. Diagnosis was made by experienced practitioners on the basis of clinical examination. Surgical treatment was undertaken during the first 24 hours after diagnosis. Almost all animals (55 = 91.5%) became sick in the post parturient period (21 days p.p. on average) with the exception of 5 (8.3%) that became sick later. Blood samples were taken from each cow immediately before surgical procedure. Serum non-esterified fatty acid (NEFA), glucose (Glu), cholesterol (Chol), aspartate aminotransferase (AST), total bilirubin (Bil) and blood urea nitrogen (BUN) were measured. Sick animals were characterized by low mean values of Chol (≤ 2 mmol/l) and normal level of BUN (12-15 mg/dl), higher levels of NEFA (> 600 μmol/l) and Bil (> 22 μmol/l), higher activity of AST (> 100 U/l). Seven cows (11.67%) died after surgical correction and all others recovered. No significant differences in NEFA, Chol, AST, Bil and BUN levels were observed as dependent on the efficacy of treatment (survival, deaths). It was found that cows which died after surgical treatment were characterized by significant higher levels of glucose (5.05 mmol/l) compared to surviving cows (2.93 mmol/l).

Key words: cows, displacement abomasum, biochemical indicators

Introduction

Health problems in the post partum (pp) period in cows are discussed mainly in the context of metabolic disturbances connected with a negative energy balance and immunosuppression as a consequence of these disturbances. However, metabolic disorders resulting from displacement of abomasum (L/R-DA – left / right displacement of abomasum) are increasingly common in this period. The displacement of abomasum, especially left-sided, usually occurs in the first month after parturition. The predisposing factors include increased concentration of nonesterified fatty acid (NEFA ≥ 500 μmol/l) in the final week of pregnancy and concentration of β-hydroxybutyrate (BHBA) ≥ 1200 mmol/l in the first week of lactation (LeBlanc et al. 2005). Also, metabolic alkalosis and hypocalcaemia (Ca < 1.2 mmol/l) are believed to be risk factors because of the observed lower contractility of the smooth muscles of the gastrointestinal tract.

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