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Title: POSSIBILITIES AND LIMITS OF HEMATIC INDICATORS AS MARKER OF INFLAMMATORY UTERINE PATHOLOGIES IN PIEDMONTESE COWS.

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Abstract:INTRODUCTION: Acute phase proteins are blood proteins synthesized by hepatocytes as part of response of the early-defense or innate immune system, which is triggered by different stimuli (trauma, infection, stress, and inflammation). Many studies, both in cattle and sheep, have reported an association between circulating concentrations of haptoglobin (APT), an acute phase protein, and uterine infection after calving (2). Creatine kinase (CK) is considered a muscle specific enzyme. CK activity is especially high in tissues with high-energy transfer such as muscle and brain (1). In abdominal organs, there are also high activities of CK particularly in the uterine tissue which has the third highest CK concentration after skeletal and cardiac muscle. There are relatively few studies about CK in cows and none in beef cattle.

OBJECTIVE: The aim of this paper is to evaluate the accuracy of APT and CK as infertility marker in postpartum Piedmontese cows.

MATERIAL and METHODS: In this study 73 apparently healthy cows were enrolled (50-60 days post partum, dpp), for each cow one blood sample was collected with venoject system (jugular vein) and evaluated respectively with IFCC method (CK) and Immunoturbidimetric method (APT): CK >100 U/l was considered the cut off for the antibiotic therapy, and 15 days after therapy a second blood sample was collected. For each cow pregnancy status, partum to conception (PC), were recorded. For PC a 150 dpp was used as cut off to evaluate pathological cows.

RESULTS and DISCUSSION: 17% of cows were open and 82% were pregnant (CK 153 vs 129 U/l), 67% of cows were CK>100 and from these 18% were open and 49% were pregnant (P=0.01), Treated versus not treated cows shows a different CK concentration (57 U/l vs 168 U/l), P=0.003. Only 5 cows with PC>150 days show a CK<100 U/L and were not treated. APT was measured only in 24 cows showing a trend in difference between open and pregnant cows (15.65 vs 11.80 mg/dl, P=0.06) but no difference was shown for PC groups. After therapy 49% of cows with CK>100 U/l, were pregnant. Higher CK was shown in cows who received therapy than others either in groups PC<150 dpp(189 vs 89 U/l; P<0,01) than PC>150 dpp (171 vs 78; U/l; P<0,01). Neither CK nor APT were different in concentration from first and second blood sample (P>0,05). Receiver operating characteristic curve show a CK cut-off for pregnancy of 115 U/l (AUC 0,63).

CONCLUSION: CK and APT seems to be good markers to evaluate fertility even in Piedmontese cows on 50-60 days postpartum, antibiotic therapy seems to be effective to cure animals mainly if they show a PC>150 days.

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