**Use of Blood L-Lactate as a Prognosis Factor for the management of surgical Digestive Disorders in cattle**

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Digestive diseases are common in cattle and a surgery is often necessary to cure. In cattle medicine, an economical approach is actually essential and we must improve prognosis accuracy using tools to decide whether to operate, cull or euthanize the animal. Blood L-lactate (BL) as prognosis factor was previously used for abomasal displacement in dairy cattle. In a preliminary study performed at the Clinique for Ruminant of the Veterinary Teaching Hospital of the veterinary of Liège based on 17 calves, BL before surgery appears to be a reliable prognosis factor with a threshold above which digestive surgery is not indicated due to the poor prognosis. We herein determine if BL variations could be used as a prognosis predictor before and after surgery in calves and adult cattle for digestive diseases.

All data were collected at the Clinic for Ruminant of the Veterinary Teaching Hospital of the University of Liège. Two studies were performed between September 2013 and June 2017. The first study concern 156 animals referred for digestive problems between January 2014 and June 2017, 66 adult animals and 90 calves, divided in two groups depending on the outcome, positive (P) or negative (N) outcome. BL was measured at the arrival after clinical examination using L-lactate Epoc® handler (LAC1). Post-operative L-lactate was measured 12h (LAC2) and 48h post-surgery (LAC3). Analysis of ROC curves indicated an AUC > 0,5 for LAC1 in calves, with a p-value of 0,039, but no reliable cut-off value could be determine. In adult cattle, no significant difference was found in LAC1 between the two groups. However, in both calves and adults cattle, LAC2 and especially LAC3 could predict outcome after surgery. The second survey deepens this aspect, studying the data of 52 adults cattle referred to the University Veterinary Clinic (CVU) for colic with a surgical intestinal disease diagnosed by celiotomy between September 2013 and May 2017. BL was measured before (LAC1) using Epoc® device, 12h (LAC2) and 48h (LAC3) after the surgery, using Accutrend®plus device. The evolution of BL over time was investigated and differences between two groups (P and N) were analyzed. The level of BL significantly decreases over time within each group and postoperative levels are significantly lower in the group with the P (p < 0.5). ROC curves show that four parameters based on the level of BL are useful to predict the outcome (i.e AUC > 0,5): LAC2, LAC3, the decrease (%) between LAC1-LAC2 and LAC2-LAC3. A P is predicted when LAC2 is < 1.73 mmol/L or when the decrease of BL is > 50 % 12h after surgery, or when LAC3 is < 1,94 mmol/L or when the decrease of BL is > 70.5% 48h after surgery.

We herein demonstrate that in calves younger than 6 months, BL could be a good prognostic tool for digestive surgery, but no threshold could be highlighted yet, so other parameters should be taken into consideration. BL before surgery cannot be used to determine outcome after surgery in adult cattle, but results shown that the BL measured after the surgery and it changes over time allow reliable predictions of the outcome of digestive surgeries in adult cattle, with a best prediction using BL 48h after surgery.