EFFECT OF A SINGLE GLUCOCORTICOID INJECTION IN ADDITION TO PROPYLENE GLYCOL TREATMENT ON PLASMA LEVELS OF BHBA AND GLUCOSE IN COWS WITH CLINICAL KETOSIS

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A clinical trial (n = 31) was performed at the Utrecht University from July 2008 - April 2010 to assess the therapeutic effect of glucocorticoids in addition to propylene glycol treatment in cows with clinical ketosis. During this period, all calved cows were monitored for clinical ketosis from parturition until six weeks after calving. Cows were considered as cases of clinical ketosis when showing the following clinical signs: reduced feed intake, reduced milk production, and a maximal score (++++) for acetoacetic acid in urine on a reagent strip (Labstix®). Clinical cases were randomly assigned to one of the following treatments: (1) 2dd 250 ml propylene glycol during 3 days (day 1-3) or (2) treatment 1 + a single intramuscular injection of the glucocorticoid dexamethasone-21-isonicotinate (Voren® suspension, 1 ml/50 kg BW) at day 1. Immediately before treatment at the day of diagnosis (day 1) and at day 2-6 of the trial, blood samples were drawn for plasma analysis of β-hydroxybutyric acid (BHBA) and glucose. Mixed model analysis (SPSS 16.0) of the data was performed blindly with treatments coded as A and B*. Average BHBA levels in plasma upon diagnosis (day 1) were similar for cows on treatment A (2.96 ± 1.16 mmol/L, n = 14) and treatment B (3.14 ± 0.74 mmol/L, n = 17). Average BHBA levels in plasma dropped during both treatments to < 1.20 mmol/L at day 4, but remained below this level in cows on treatment B only (significant day * treatment interaction, p = 0.001). Average glucose levels in plasma were also similar at day 1 for cows on treatment A (2.22 ± 0.38 mmol/L) and treatment B (2.20 ± 0.44 mmol/L). Average glucose levels in plasma increased more in cows on treatment B (maximum 4.42 ± 0.71 mmol/L) than with treatment A (maximum 3.10 ± 0.57 mmol/L) and also remained higher in cows on treatment B (significant treatment effect, p < 0.0001). In conclusion, treatment B seems the most beneficial treatment for clinical ketosis, as cows on this treatment remained to have low BHBA levels after the treatment and had higher glucose levels during the entire clinical trial.

* Treatments will be known at the time of the congress.

Keywords: Dairy cows, clinical ketosis