Effect of oral electrolyte solution on formulation on abomasal luminal pH in suckling dairy calves

Constable, P. D.; Ahmed A. F. and Misk N. A.

Abstract:

Neonatal calf diarrhea is a major source of economic loss to the cattle industry and the leading cause of calf mortality in the United States. Oral electrolyte solutions (OES) are routinely administered to dehydrated calves with diarrhea, and it is widely accepted that OES should contain an alkalinizing agent such as bicarbonate; acetate, propionate, or citrate. We hypothesized that administration of bicarbonate-containing OES induced a sustained abomasal alkalinization in dairy calves, relative to suckling milk replacer or acetate-containing OES. The aim of this study was therefore to determine the effect of suckling 3 commercially available OES on abomasal luminal pH, and to compare the effect of the 3 OES on luminal pH with that produced by suckling milk replacer. Six male dairy calves (aged 12-31 days of age) with cannulae in the abomasal body were administered the following treatments (60 ml/kg body weight, twice, 12 h apart) in a randomized crossover design: all milk protein milk replacer, two hyperosmotic bicarbonate-containing OES (ENTROLYTE-HE©; BIOLYTE(R), and an isoosmotic acetate-containing OES (ELECTYDRAL©). Abomasal luminal pH was measured every second for 24 h using a miniature glass pH electrode. Data were expressed as least square means for the 24 h recording period, and a P value

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