

Glucose Test Strips—An Important Aid During the Intensive Therapy of Diarrheic Calves

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Severe enteritis in neonatal calves can very quickly lead to the exitus of the animal. Besides infectious causes dietary mistakes play an important role. The pathogenesis of diarrhea is basically understood: The body loses fluid with the electrolytes provided with the nutrition due to malabsorption. This reason and the hematodyscrasia resulting from the inflammatory process lead to disturbance of the circulation together with recognizable clinical symptoms like cold distal parts of the extremities, lower skin turgor, sunken eyes and apathetic bedding down.

Numerous examinations show that besides a rise in hematocrit values and blood urea a rapid drop in the blood-pH and blood glucose level can be observed. The levels are extremely low in firmly bedded down animals which will not take any feed. These calves can only be saved by intensive intravenous infusion therapy. To understand the energetic situation of the patient determination of the blood glucose level is of importance. Test strips used in human medicine for a semiquantitative glucose determination in whole blood (e.g. Chem strip bG, StatTek-Glucose Low Level, Bio-Dynamics/bmc., 9115 Hague Road, Indianapolis, IN 46250) allow a fairly accurate and quick method. The blood sample is taken from the V. jugularis. The vein can be found in an exsiccotic calf by pulling the animal up by its hind legs creating a blood stasis in the neck-head region. A drop of fresh blood is given for one minute onto the indicator zone of the test strip, wiped off with some cotton, and after another minute compared with the color scale.

FIGURE 1. Five day old calf with diarrhea firmly bedded down.

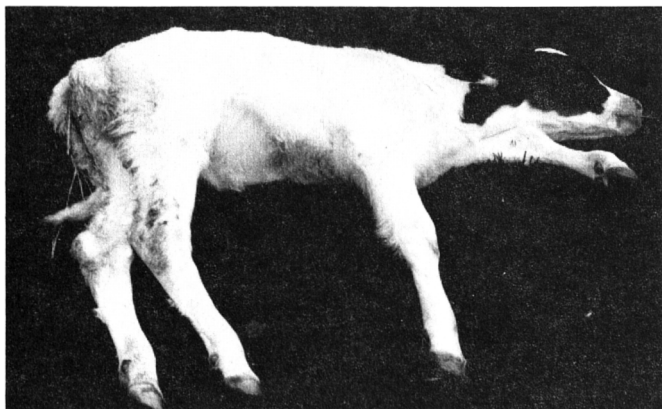


FIGURE 2. To find the V. jugularis the calf is pulled up by its hind legs.



FIGURE 3. After 2 minutes the blood glucose level of 1.1 mmol/l (!) can be shown (normal values 5-6 mmol/l).



FIGURE 4. and 5. The infusion of 20g glucose and 10g sodium-bicarbonate has the effect that the patient is interested in the diet drink.



Since apathetically bedded down animals show extreme hypoglycemia the color comparison is easy and the results may be used directly for therapy. The test strip method was found in 150 cases to demonstrate good comparable results to the GOD-serum method. An influence of the air in the stable on the accuracy of the method could not be observed.