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TWO-DIMENSIONAL SPECKLE TRACKING ECHOCARDIOGRAPHY IN CALVES: FEASIBILITY, REPEATABILITY AND VARIABILITY STUDY. Laureline Lecoq, H el ene Amory, Aur elia Leroux. Department of Companion Animals and Equids, Faculty of Veterinary Medicine, University of Liege, Li ege, Belgium

Two-dimensional speckle tracking (2DST) is a non-invasive technique used in many species to evaluate global and regional left ventricular (LV) function; however it received little attention in the bovine species.

The aim of this study was to assess the feasibility and reliability of 2DST for the evaluation of circumferential and radial LV wall motions in calves.

Fourteen Holstein black calves (age: 62 ± 11.6 days; body weight: 75.25 ± 5.4 kg) were used in this observational study. Right parasternal short axis views at the level of the papillary muscles were recorded and subsequently analysed by 2DST for global and regional radial and circumferential strains and strain rates, radial displacement, rotation and rotation rate. Echocardiographic examinations were performed in unsedated, standing calves by two different observers to evaluate intra- and interobserver repeatability and variability.

2DST was feasible in all calves but 2 were excluded from analyses (ventricular septum defect and resting heart rate above 120 bpm, respectively). Automated tracking was better in systole than in diastole. Intraobserver repeatability was good to moderate for most systolic global and segmental peak values. Systolic peak values for radial strain and strain rate were more repeatable than for circumferential strain, circumferential strain rate and diastolic measurements. Variability of the interobserver measurements was greater than the intraobserver measurements.

Two-dimensional speckle tracking is feasible in calves and as in other species systolic radial function can be more reliably evaluated than circumferential and diastolic function.

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VENOUS LACTATE, PH AND PCO₂ LEVELS AS MORTALITY INDICATORS IN PREMATURE CALVES. Hasan Guzelbektes¹, Ramazan Yildiz², Ugur Aydogdu³, Alparslan Coskun³, Ismail Sen¹. ¹Faculty of Veterinary Medicine, Selcuk University, Selcuklu, Konya, Turkey, ²Faculty of Veterinary Medicine, Mehmet Akif Ersoy University, Burdur, Turkey, ³Faculty of Veterinary Medicine, Cumhuriyet University, Sivas, Turkey

Hyperlactatemia, hypercapnia, low pH and low O₂ sat are commonly observed in premature calves. Effect on mortality of venous Lactate, pH and pCO₂ Levels in 110 premature calves with Respiratory Distress Syndrome (RSD) was investigated in the study. The study was performed between 2010 and 2014. All premature calves were admitted to the clinic within 24 hours after birth. In addition to short gestational age, clinical signs of low birth weight, including an inability to stand, short and silky hair, and incomplete eruption of the incisor teeth were also present in the premature animals. Ninety-four of the premature calves were Holsteins, 16 were Swiss-Browns; and 42 were bull calves. Blood samples were collected anaerobically into heparinized tubes from the jugular vein and measured immediately using a blood gas analyzer. Data were expressed as means and standard deviation (Mean \pm sd). Independent samples T test was used to compare the venous blood gas indicators of surviving and non-surviving premature calves.

All premature calves had low venous pH and low pO₂, high pCO₂ and high lactate. Total of 81 calves survived and 29 calves died within 48 hours after birth. Venous pH in non-surviving premature calves was decreased compared to surviving premature calves, while pCO₂, O_{2sat} and lactate concentration in non-surviving premature calves were increased (Table 1).

In conclusion, the results indicate that there were positive relationship between mortality and decreasing venous pH, increasing lactate concentrations and pCO₂ levels in premature calves with RSD and concurrent evaluations of these parameters could be useful in prognosis evaluation of premature calves with RSD.

Table 1 Parameters in non-surviving and surviving premature calves with RSD

Parameters	Non-surviving	Surviving	P
	Mean \pm SD (n = 29)	Mean \pm sd (n = 81)	
pH	7.05 \pm 0.16	7.29 \pm 0.10	0.000
pCO ₂ (mmHg)	78.9 \pm 21.0	56.39 \pm 11.4	0.000
Lac(mmol/L)	9.50 \pm 3.97	5.18 \pm 3.22	0.000
pO ₂ (mmHg)	18.8 \pm 6.60	19.1 \pm 6.09	0.851
O ₂ SAT(%)	16.2 \pm 9.19	25.54 \pm 13.20	0.000

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COMPARE EFFECT OF COMBINATIONS OF INTRAVENOUS AND ORAL ELECTROLYTE SOLUTION ON TREATMENT OF CALF DIARRHEA WITH MILD-MODERATE DEHYDRATION AND METABOLIC ACIDOSIS. Ismail Sen¹, Hasan Guzelbektes¹, Ugur Aydogdu², Ramazan Yildiz³, Amir Nasiri¹. ¹Selcuk University, Faculty of Veterinary Medicine, Selcuklu/Konya, Turkey, ²Cumhuriyet University, Faculty of Veterinary Medicine, Sivas, Turkey, ³Mehmet Akif Ersoy University, Faculty of Veterinary Medicine, Burdur, Turkey

The objective of this study was to compare effect of combinations of intravenous isotonic sodium bicarbonate, sodium lactate, sodium acetate and hypertonic sodium chloride solutions with oral electrolyte solution on treatment of calf diarrhea with mild – moderate dehydration and metabolic acidosis. Thirty two calves (1–30 days old, with diarrhea, 5 -8% dehydration and venous pH \geq 7.2, base excess (BE); -2.6 to -12.8 mEq/L) were used in the study. There were four different treatment groups in the study.

Treatment group 1 (n:8): Isotonic sodium bicarbonate (1.3% NaHCO₃ [13 mg of NaHCO₃/mL] was given via intravenous (IV) at rate 20 mL/kg/h and followed oral electrolyte solution (60 mL/kg) was administered.

Treatment group 2 (n:8): Isotonic sodium acetate (80 mL/kg) was given via IV at rate 30 mL/kg/h. and followed oral electrolyte solution (60 mL/kg) was administered.

Treatment group 3 (n:8): Isotonic sodium lactate (80 mL/kg) was given via IV at rate 30 mL/kg/h. and followed oral electrolyte solution (60 mL/kg) was administered.

Treatment group 4 (n:8): 7.2% hypertonic saline (4 mL/kg) was given via IV and followed oral electrolyte solution (60 mL/kg) was administered. Intravenous solutions was given to all calves by infusion machine.

The changes in clinic, hemodynamic, hematologic, blood gas, plasma volume, serum electrolyte and proteins were determined periodically during 24 hours following fluid administration to calves.

Calves that received intravenous isotonic sodium bicarbonate, hypertonic 7.2% NaCl, sodium lactate and sodium acetate solutions along with oral electrolyte solution had an increase in venous blood pH, HCO₃ concentration, and base excess within 4 hours after the beginning of the administration. Increase in plasma volume and sodium concentration, but decrease in serum total protein were observed within 0.5 hours following administration of hypertonic 7.2% NaCl +oral electrolyte solution combination compared to other solution.

The results of the study show that administration of IV hypertonic 7.2% NaCl solution in small volume along with oral electrolyte solution provided fast and effective improvement of dehydration and acid-base abnormalities within short time in treatment of calf diarrhea with mild –moderate dehydration and metabolic acidosis, compared to other treatment groups.