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 analyzed 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 as well as in other species. Systolic radial function can be more reliably evaluated from circumferential and diastolic function.

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

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Non-surviving Mean ± SD</th>
<th>Surviving Mean ± sd</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
<td>7.45 ± 0.16</td>
<td>7.29 ± 0.10</td>
<td>0.00</td>
</tr>
<tr>
<td>pCO2 (mmHg)</td>
<td>78.9 ± 21.0</td>
<td>56.39 ± 11.4</td>
<td>0.00</td>
</tr>
<tr>
<td>Lac (mmol/L)</td>
<td>9.50 ± 3.97</td>
<td>5.18 ± 3.22</td>
<td>0.00</td>
</tr>
<tr>
<td>pO2 (mmHg)</td>
<td>18.8 ± 6.60</td>
<td>19.1 ± 6.09</td>
<td>0.851</td>
</tr>
<tr>
<td>O2 SAT (%)</td>
<td>16.2 ± 9.19</td>
<td>25.54 ± 13.20</td>
<td>0.00</td>
</tr>
</tbody>
</table>

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**F18 COMPARISON EFFECT OF COMBINATIONS OF INTRAVERSEOUS AND ORAL ELECTROLYTE SOLUTION ON TREATMENT OF Calf DIARRHEA WITH MILD-MODERATE DEHYDRATION AND METABOLIC ACIDOSIS**

The objective of this study was to compare the 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 ≥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 administrated.
- 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 administrated.
- 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 administrated.
- Treatment group 4 (n:8): Hypertonic saline (4 mL/kg) was given via IV and followed oral electrolyte solution (60 mL/kg) was administrated.

Intravenous solutions was given to all calves by infusion machine.

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

Calfes 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.