

Cow and calf-level factors associated with nursing behaviours in beef cattle during the 24-hours following an assisted calving

K. McLellan, BSc, MSc; C. Windeyer, BSc, DVM, DVSc; C. Lucio Rodriguez, BSc; E. Pajor, MSc PhD;
Jennifer M. Pearson, DVM DACT PhD

University of Calgary Faculty of Veterinary Medicine, Calgary, Alberta, T2N1N4 Canada

Introduction

Nursing behaviour is essential following parturition to ensure transfer of passive immunity and the development of a strong cow-calf bond. One factor that could modify nursing behaviour is dystocia; however, little work has documented this effect. The objective of this study was to: 1) characterize nursing behaviour in beef cattle for 24 hr following an assisted calving, 2) identify cow- and calf-level factors associated with nursing behaviours, and 3) determine the effects of cow and calf behaviours on the transfer of passive immunity.

Materials and methods

Twenty-three cow-calf pairs requiring assistance at calving from a cow-calf operation located in southern Alberta were enrolled. After calving assistance, calves were administered 1.4 L of colostrum replacer (Calf's Choice Total®, Saskatoon Colostrum Company Ltd.) and were housed in individual box stalls where they were video recorded for 24 hr to score nursing behaviour (time to first nursing bout, total time spent nursing, number of nursing bouts and nursing bout length). Predictors of nursing behaviours including cow-level factors (parity, calving difficulty, time spent licking the calf within 1 hr following birth) and calf-level factors (calf sex, birthweight, calf presentation, meconium staining, latency to first stand, number of attempted stands before first complete stand, and measure of calf vigor [suckle reflex, tongue withdrawal reflex, mucous membrane colour]). Calf blood samples were collected 24 hours after calving to determine serum IgG concentrations. Inadequate transfer of passive immunity (ITPI) was defined as IgG < 24g/L. Cow- and calf-level factors impacting nursing behaviours were analyzed using a 2-sample t-test, Wilcoxon rank-sum, or univariable linear regression. The effect of maternal and calf behaviours on ITPI was analyzed using a Fisher exact test and Wilcoxon rank-sum test.

Results

Median and interquartile range (IQR) for latency to nurse was 8.03 hr (1.84 – 17.5 hr). On average, calves spent a total of 43.3 ± 21.8 min nursing and had 23.1 ± 14.8 nursing bouts over the 24-hr period with a median nursing bout length of 1.97 min (IQR: 0.37 - 2.72). Calves nursed earlier if they were born to a multiparous dam (5.18 ± 6.10 hr) compared to a primiparous dam (17.1 ± 5.3 hr, $P < 0.01$). Calves that were licked within 1 hr of birth nursed earlier (7.15 ± 7.50 hr) than calves not licked within 1 hr of birth (16.0 ± 7.0 hr, $P < 0.01$). Calves also nursed earlier if they stood earlier ($P < 0.01$). No other cow- and calf-level factors were associated with nursing behaviours. A total of 39% of calves had ITPI, however, there were no significant associations between maternal and calf behaviours and transfer of passive immunity.

Significance

Results from this study suggests that there is large variability in the maternal and nursing behaviours of assisted cow-calf pairs. Calves born to primiparous dams or dams who failed to lick their calf following birth took longer to achieve their first nursing bout. These calves may require additional attention following birth to achieve optimal health and performance. Results from this study contribute to a growing body of literature on maternal behaviours in beef cattle and can be used to inform management decisions for supporting the health and welfare of cow and calves after an assisted calving.

