Meloxicam mediates short-term behavioral changes of castrated calves

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Meloxicam mediates short-term behavioral changes of castrated calves


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Castration may detrimentally affect the health and performance of weaned calves and painful procedures are increasingly a public concern. Therefore, practical pain mitigation is critical. The objective was to determine the effects of castration (by banding) with or without administration of NSAID, meloxicam, on the behavior of weaned beef calves. Forty-eight (56 d post-weaning) beef calves [10.0 ± 0.2 (mean ± SE) mo old; 304 ± 6 kg BW] were blocked by multiple factors then randomly assigned to 3 treatments (n = 16 calves per treatment: 1) intact bulls (BULL), 2) castration by banding (BAN), or 3) castration by banding with orally-administered meloxicam (3 mg per kg BW on d 0 and 14; BAN+M). On d -7, calves were assigned to 8 pens (2 calves per treatment within each pen). Behaviors [mean lying time (h/d), mean lying bouts (n/d), and steps (n/d)] were recorded at 1-min intervals for 27 d by dataloggers fitted to the calves on d 0. Data were analyzed using a mixed model in SAS with repeated measures. Over 27 d, BULL spent more time lying (13.9 ± 0.6 h/d) compared to BAN (11.9 ± 0.6 h/d; P < 0.001) or BAN+M (12.2 ± 0.6 h/d; P = 0.004), which did not differ from one another (P = 0.85). During the 3 d after each administration of meloxicam, treatment differences were evident among all treatments. BULL spent more time lying (12.9 ± 0.6 h/d) than BAN (9.7 ± 0.7 h/d; P < 0.001) and tended to spend more time lying than BAN+M (11.4 ± 0.6 h/d; P = 0.07). BAN+M spent more time lying than BAN (P = 0.02). Day and treatment by day interactions were evident for both periods (P < 0.04). Lying bouts were not affected by treatment over 27 d (P = 0.23) or the 3 d after meloxicam (P = 0.32). Steps per d tended to differ among treatments (P = 0.09); BULL took fewer steps (829 ± 75 n/d) than BAN (991 ± 76 n/d) or BAN+M (972 ± 75 n/d) over 27 d. BULL took fewer steps than BAN (886 ± 80 vs 1133 ± 81 n/d; P < 0.001), but did not differ from BAN+M (1035 ± 80 n/d; P = 0.16) over the 3 d after meloxicam. Decreased lying and increased steps suggest castration was painful regardless of pain abatement. The benefits of meloxicam were evident from decreased behavioral changes 3 d after administration.

Keywords: calf, castration, behavior