Meloxicam and the reproductive performance of lame dairy cattle

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Introduction

Enhancing the treatment of lame dairy cattle can not only aid the animal at the time of treatment but also contribute to long-term benefits and act as a preventive measure (Wilson *et al*. 2022). Non-steroidal anti-inflammatory drugs (NSAIDs) contribute an important component of lameness treatment (Thomas *et al*. 2015; Sadiq *et al*. 2022), however, there currently are no data that report a positive effect with NSAIDs alone, or in lameness not identified in the acute phase, a phenomenon that rarely happens in practice (Fabian *et al*. 2014; Mason *et al*. 2022). There is some evidence that NSAID may have effects beyond a month of treatment. Wilson *et al.* (2022) reported a reduction in the hazards of culling when lame cattle received a three-day course of ketoprofen at the time of lameness diagnosis compared to negative control animals, reporting fertility as the primary reason for culling. Thus, the two objectives of this study were to assess whether meloxicam treatment at the time of lameness treatment for claw-horn (CH; white-line or sole) lesions in dairy cattle (1) reduced the time to lameness cure and (2) improved reproductive success of these lame animals.

Methods

Five seasonal-calving pasture-based dairy farms located in the Waikato region of New Zealand were enrolled into a randomised controlled trial. Farmers were tasked with identifying lame animals over a period just prior to, and during, the breeding season, with lameness subsequently confirmed with locomotion score (LS) by trained technicians (0-3 scale). Animals with a LS ≥2 were examined by a veterinarian who then enrolled animals if they presented lame with CH lesions. This same veterinarian then provided therapeutic claw trimming, and application of wooden blocks, to the enrolled lame animals. Randomisation into either meloxicam or negative control groups was conducted after trimming, with animals blocked by farm and lesion. Following lameness treatment, animals were locomotion scored at a median interval of every four days until LS=0 and had conception date and pregnancy status confirmed via rectal ultrasound. Outcomes were number of days to lameness cure and number of days to conception, and binary outcomes of pregnant within six weeks from the start of the breeding period and final pregnancy status. Cox proportional hazard methods were used to analyse the time-to-event outcomes, with binary outcomes analysed using multivariable logistic regression methods.

Results

A total of 241 animals with CH lameness were enrolled, 123 into the meloxicam group and 118 into the control group. No improvement in the hazards of time to soundness was reported between animals in the two treatment groups (p=0.08). Regardless of NSAID treatment, lame animals transitioned rapidly to non-lame and were back within the milking herd on average within seven days. From the 229 animals with reproductive outcome data (117 meloxicam treated and 112 control treated), the hazards of conception in meloxicam treated animals were 1.42 times that for the control animals (p = 0.02). Meloxicam treated lame animals had significantly greater predicted probabilities of conceiving within the first six weeks of the breeding period (p=0.037) and final pregnancy risk (p=0.019) compared to control lame animals, with both outcomes predicting a ~15% improvement in absolute pregnancy status with the addition of meloxicam.

Conclusions

The addition of meloxicam to the treatment regime of lame dairy cattle with CH lesions can dramatically improve reproductive outcomes, despite no apparent difference in lameness cure rates. Further information can be found in the in-press publication of this study (Mason and Laidlaw 2025).

References

Fabian J, Laven RA, Whay HR. The prevalence of lameness on New Zealand dairy farms: A comparison of farmer estimate and locomotion scoring. *Vet. J* 201(1): 31–38, 2014

Mason W, Cuttance E, *et al*. Graduate Student Literature Review: A systematic review on the associations between nonsteroidal anti-inflammatory drug use at the time of diagnosis and treatment of claw horn lameness in dairy cattle and lameness scores, algometer readings, and lying times. *J. Dairy Sci* 2022

Mason WA, Laidlaw J. The effect of meloxicam at the time of treatment of hoof-horn lameness in pasture-grazing dairy cattle on time to lameness soundness, pregnancy risk and time to conception; a randomized control trial. *J. Dairy Sci* 2025

Sadiq MB, Ramanoon SZ, *et al*. Treatment protocols for claw horn lesions and their impact on lameness recovery, pain sensitivity, and lesion severity in moderately lame primiparous dairy cows. Front. *Vet Sci* 9, 2022

Thomas HJ, Miguel-Pacheco GG, *et al*. Evaluation of treatments for claw horn lesions in dairy cows in a randomized controlled trial. *J. Dairy Sci* 98(7): 4477–4486, 2015

Wilson JP, Green MJ, *et al*. Effects of routine treatment with nonsteroidal anti-inflammatory drugs at calving and when lame on the future probability of lameness and culling in dairy cows: A randomized controlled trial. *J. Dairy Sci* 105(7): 6041–6054, 2022