



Potential benefit of non-steroidal anti-inflammatory drugs (NSAIDs) in severely lame dairy cows

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INTRODUCTION

Claw horn lesions (mainly sole haemorrhage, sole ulcer and white line disease) are the most prevalent conditions found when treating clinically lame dairy cows in New Zealand (Chesterton 2008). Recent overseas research has identified a significant association between claw horn lesions and a thickened digital cushion, most likely representing inflammation (Newsome et al. 2017). The role of inflammation in lameness is also supported by findings of new bone development on the caudal aspect of the distal phalanx (Newsome et al. 2016) and improved lameness cure when NSAID treatment is administered in addition to therapeutic trimming and elevation of the diseased claw using a block (Thomas et al. 2015).

However, under New Zealand conditions there was no difference in outcomes between lame cows with claw horn lesions treated with blocks and NSAID treatment in addition to therapeutic trimming alone (Laven et al. 2008). Both these treatment response trials had a maximum NSAID treatment duration of three days.

This case reports on the use of longer duration NSAID treatment as an adjunct to common treatment practices during an 'acute outbreak' of claw horn lesions in a milking herd in the North Canterbury region of New Zealand.

CASE DESCRIPTION

During July 2017 our resident Healthy Hoof Provider was called by an on-farm MPI investigator to assist in a severe case of lameness in a dairy herd. The farm was a new dairy conversion milking 720 cows (mixture of autumn calving, late spring calving and carry over cows) through a state of the art 60 bale rotary with feed pad.

After acute ambulatory treatments, a whole herd locomotion score (LCS) was performed, with 153 cows (21%) observed LCS 3 (severe lameness), 195 cows (27%) LCS 2, 223 cows (31%) LCS1, and 145 cows (20%) LCS 0 (not lame).

Thanks to assistance from local hoof trimmers, all LCS 2 and 3 cows were examined and treated during the same week. Analysis of hoof trimmer records for LCS 3 cows show 77% sole lesions (mainly multiple limb with claw/sole haemorrhage), 17% white line disease, 4% footrot and 2% fissures.

Key areas were identified for lameness control improvement:

- Early identification and treatment of further lame cows
- Create a safe environment for cows to walk through shed and concrete (see figures 1 and 2).

CASE REPORT



Figure 1: Stones present on yard/feedpad after milking.

Figure 2: Track surface near yard entry

Table 1: Whole herd BCS summary	
BCS	% of animals with score
2.5	0.7%
3.0	7.3%
3.5	34.4%
4.0	41.6%
4.5	15.8%
5.0	0.2%

Body condition score (BCS) loss can be a risk factor for claw horn lesions in overseas herds (Newsome et al. 2017). A whole herd BCS was performed with an average score of 3.8 (Table 1).

Based on lameness severity and/or BCS result relative to calving date, 57 cows were dried off after examination by the hoof

trimmer. In addition to therapeutic trimming and elevation of the diseased claw using a block (if required), it was decided to treat all LCS 3 cows with ketoprofen (Ketomax 15% injection, Agrihealth Ltd) once daily until LCS had improved to at least score 2. This would require off-label longer courses of treatment where necessary. Having sought advice from Agrihealth veterinarians we were comfortable authorising daily treatment for up to 8 days to the farmer, at the label dose. Any cows to be dried off received a one-off treatment with meloxicam (MeloxiVet Injection, Agrihealth) at time of treatment by the hoof trimmer and at any follow up examinations.

OUTCOME

All LCS 3 cows received ketoprofen once daily for up to 9 days (a small number of cows received up to 14 consecutive days of treatment). Out of 153 cows there were no reports of any abnormal clinical observations in any of the lame cows, although there was one death during ketoprofen treatment. Unfortunately, the clinic was not notified in time for a post mortem examination to be undertaken to determine if the death had any relation to the lameness treatment. On-going LCS monitoring of lame cows were performed by veterinarians during the 'acute phase' of the farm's lameness reduction plan. Table 2 provides a summary of LCS improvement over time for milking cows, Table 3 for dry cows. Within 52 days, the number of LCS 3 cows was reduced to 4 animals.

Table 2: Summary of LCS improvement over time for milking cows

Date	No. of cows with LCS 3	No. of cows improved to LCS 2	Percentage reduction
04/07/17	153		
07/07/17	123	30	20%
14/07/17	102 [#]	42*	34%
26/07/17	57	40*	39%
07/08/17	10	34*	60%
24/08/17	1	9	90%

[#] 26 cows deteriorated from LCS 2 to 3

* 14/07/17 5 cows were euthanised due to lack of treatment response, 26/07/17 a further 5 cows were euthanised and 07/08/17, 3 cows were euthanised

Table 3 Summary of LCS improvement over time for dry cows

Date	No. of cows with LCS 3	No. of cows improved to LCS 2	Percentage reduction
10/07/17	57		
17/07/17	26	18*	32%
26/07/17	14	10*	38%
07/08/17	3	8*	57%

* 17/07/17 3 cows were euthanised due to lack of treatment response, 26/07/17 a further 4 cows were euthanised and 07/08/17 3 cows were euthanised

CASE REPORT



DISCUSSION

Without a negative control group, it cannot be established if there was any effect of longer duration NSAID treatment on clinical outcomes. When asked for feedback, the farmer stated "the cows seemed more comfortable walking and the main benefit I think was the lesser reduction in feed intake from what score 3 cows used to have prior to using pain relief for severe lameness. Administration with a bottle set up on a gun ready to go at 10ml dose was very easy. Injection site reactions were nil. This was especially good considering how many consecutive treatments the worst of the lame cows got!"

Thomas et al. (2015) suggests that lameness cure is maximised with NSAID treatment in addition to therapeutic trimming and elevation of the diseased claw using a block when cows are newly and predominantly mildly lame. They reported an additional 13% cows observed as non-lame after 5 weeks when ketoprofen was used in addition to therapeutic trim and block application compared to therapeutic trim and block application alone. Our case report appears to support the use of ketoprofen in this extreme lameness case which was often longer than the label recommendation, to reduce pain and inflammation associated with the foot lesions, and improve cow welfare, grazing time and return to soundness in the milking herd.

CONCLUSION

NSAID treatment should be considered as part of frontline treatment for lame cows, particularly severely lame cows with multiple limb lameness from claw/sole haemorrhages.

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CONUNDRUM



[kuh-nuhn-druh m]

Noun. Anything that puzzles.



Peter Briston of Cambridge Vets gives a full explanation of his conundrum on page 38 but before you read on,

WHAT'S YOUR DIAGNOSIS?