

PAPER



OPEN ACCESS

Recovery of chronically lame dairy cows following treatment for claw horn lesions: a randomised controlled trial

H. J. Thomas, J. G. Remnant, N. J. Bollard, A. Burrows, H. R. Whay, N. J. Bell, C. Mason, J. N. Huxley

Veterinary Record
(2016) 178, 116

cite as doi:
10.1136/vr.103394

H. J. Thomas,
J. G. Remnant,
N. J. Bollard,
J. N. Huxley,
University of
Nottingham,
Leicestershire, UK

A. Burrows,
Scarsdale Veterinary
Group, Derby, UK

H. R. Whay,
University of Bristol,
Langford, UK

N. J. Bell,
Royal Veterinary
College, Hertfordshire,
UK

C. Mason,
Scotlands Rural College,
Edinburgh, UK

Correspondence to
H. J. Thomas, e-mail:
stxht1@nottingham.
ac.uk

This is a summary
of a paper that is
published in full at
veterinaryrecord.
bvapublications.com

Published Online First
January 25, 2016

Context

Limited information is available in the literature providing guidelines for practitioners as to what are the most effective treatment options for claw horn lesions in dairy cattle. Two randomised controlled clinical trials (RCT) conducted in Australia and New Zealand investigated the use of common treatment options but found no significant difference in the recovery and/or outcome between the treatments tested.

In contrast, a RCT carried out on newly lame cows in the UK found that, when compared with a minimum treatment intervention of a therapeutic foot trim, the addition of a foot-block and a three-day course of a non-steroidal anti-inflammatory drug (NSAID) had a significant effect on recovery to soundness over a 35-day period.

Due to differences in the methods used to identify lame cows, it is possible these different findings represent an effect of the chronicity of disease.

This study aimed to investigate the effect of commonly used claw horn lesion treatments in cows suffering from a more chronic and possibly more severe disease than those treated in the earlier UK RCT.

Main conclusion

This RCT investigated the treatment of chronic lameness (greater than two weeks' duration) caused by claw horn lesions in dairy cows, and found no significant difference in recovery at 42 days (± 4) after treatment between cows treated with a therapeutic foot trim; a therapeutic foot trim and a plastic shoe; or a therapeutic foot trim, a shoe and a three-day course of NSAID. Response to treatment was poor regardless of the treatment administered. It was also observed that 38 per cent of cows were lame on the contralateral hindlimb at outcome. When this study is considered together with the earlier UK study, which treated acutely lame cows (less than two weeks' duration), two key clinical findings can be identified.

First, any delay in treatment of claw horn lesions regardless of the treatment administered, is likely to reduce the rate of recovery. This suggests that early identification and prompt, effective treatment of claw horn lesions is key to their successful management.

Secondly, lame cows with claw horn lesions should be considered to have lesions on both hindlegs regardless of which leg is identified as lame. Therefore, therapeutic foot trims (plus additional treatment[s] as required) of the non-lame leg should be implemented at the time of examination.

Approach

Seven commercial farms in the UK Midlands were included. Mobility scoring of cows was taken fortnightly and the cows were selected by lameness severity and chronicity. Eligible cows underwent examination of the lame foot and any with infectious lesions (interdigital necrobacillosis or digital dermatitis) or large interdigital growths were excluded. The subjects then received a five-stage therapeutic foot trim followed by random allocation of: no further

treatment (TRM); a plastic shoe (TS); or a plastic shoe and NSAID (TSN). Recovery was assessed by the mobility score at 42 days (± 4) after treatment by an observer blind to treatment group.

Results

Between December 1, 2013, and January 16, 2015, 648 cows were examined after meeting the initial selection criteria. Of these, 189 cases of lameness from 176 cows were enrolled on to the trial (63 TRM, 64 TS and 62 TSN). Thirty-three cases were not available for outcome assessment because they were sold, culled, dried off or treated for other conditions.

Multivariable analysis showed no significant effect of treatment with an almost identical, low response rate to treatment across all groups (percentage non-lame at outcome: TRM 15 per cent, TS 15 per cent, TSN 16 per cent). Forty-two days after treatment 132 cases remained lame (mobility score greater than 1); 60 were identified as lame on the opposite leg from the leg identified as lame at enrolment.

Interpretation

In dairy cows with chronic lameness caused by claw horn lesions recovery at 42 days (± 4) after treatment was poor regardless of the treatment administered. Around 15 per cent of the cows were non-lame at outcome compared to 69 per cent (trim only) and 85 per cent (trim, block, NSAID) of cows in the earlier UK RCT treating acute lameness. Part of the explanation for this large difference was the number of cows that were lame on the opposite hindlimb at outcome (38 per cent in chronic cases compared with 11 per cent in acute cases). If this treatment is considered to be successful (all be it of the original lame limb only) the response rate increases to 54 per cent overall. The rate is lower but closer to the treatment success reported by the earlier RCT.

The authors propose two explanations for this difference. First, since many of the proposed factors leading to claw horn lesions occur at a cow level, it is reasonable to expect that changes occur in both hindlimbs; however, treatment delays can lead to magnified effects as bilateral lesions have had longer to develop. Secondly, the increase in loading on the opposite limb in these more chronically (and severely) lame cows could have precipitated or exacerbated the development of more severe lesions in the other hindlimb.

Significance of findings

When comparing these results to the earlier UK RCT it is evident that delaying the time to administration of treatment has a profound effect on outcome. These results also suggest that in all but the most acute cases of lameness, both hindlimbs should be treated at initial examination even if lameness is only evident in one limb. This will reduce the likelihood of a contralateral lameness occurring in the following weeks.