EFFICACY OF FLUNIXIN MEGLUMINE IN THE AMELIORATION OF LAMENESS IN AN AMPHOTERICIN B-INDUCED TRANSIENT SYNOVITIS- ARTHRITIS MODEL IN DAIRY STEERS

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Introduction: LAMENESS is a common, painful condition in cattle. We hypothesized that flunixin meglumine would provide analgesia in cattle with amphotericin B-induced synovitis-arthritis. The objectives of this study were to develop a transient model of synovitis-arthritis LAMENESS in cattle.

Materials and methods: Ten normal Holstein steers were selected for the study. Triaxial accelerometers were placed on the rear limb of the steers and trained to walk across a pressure mat. Amphotericin B was injected in the lateral distal interphalangeal joint of one hind limb. Steers were randomly allocated into a treatment or control group. Treatment steers received flunixin meglumine IV at the time of induction. Visual LAMENESS assessment, pressure mat, and accelerometric data were gathered and analyzed for 60 hours post-induction.

Results: Control steers were more than twice as likely to be lame as flunixin meglumine treated steers (92.2% ± 8.1 versus 40.7% ± 2.5) (P< 0.03) as judged by visual LAMENESS assessment. Flunixin meglumine treated steers exerted significantly greater (p< 0.05) maximum force, mean force, mean contact area on the affected foot during the stance phase. Flunixin meglumine treated steers also exerted significantly greater (p< 0.05) maximum force, mean force, impulse, maximum contact area and mean contact area on the paired claw during the stance phase as compared to control steers. Flunixin meglumine treated steers spent considerably less time in recumbency than their control counterparts, particularly in the immediate post-induction time period.

Discussion: This is one of the first studies to document the characteristics of an amphotericin B-induced synovitis-arthritis model in cattle as well as to document analgesic efficacy of a nonsteroidal anti-inflammatory drug in an induced LAMENESS model. Amphotericin B was an efficient and humane method for the study of LAMENESS in cattle.

Conclusion: Flunixin meglumine provided analgesia for amphotericin B-induced synovitis-arthritis in dairy steers.