Evaluation of flunixin meglumine and suture selection on post-operative pain following abdominal surgery in cattle.

M.D. Kleinhenz, DVM, PhD[1]; **J.S. Smith**, DVM, MPS, DACVIM-LA, CVA[1]; **N. Jackson**, DVM[1];
P.J. Gorden, DVM, PhD, DABVP-Dairy, DACVCP[1]; **K.E. Kleinhenz**, DVM, MS[2]; **J.A. Schleining**, DVM, MS, DACVS-LA[1]
[1] Veterinary Diagnostic and Production Animal Medicine, Iowa State University, Ames, IA 50011
[2] Department of Diagnostic Medicine/Pathobiology, Kansas State University, Manhattan, KS 66506

Introduction

There is very little published literature objectively measuring analgesics and influence of suture selection on pain in bovine surgery. The objective of this study was to determine the impact of intravenous flunixin meglumine and suture material selection on pain measures following ventral midline celiotomy.

Materials and Methods

Twenty–four Holstein steers 4-6 months of age were enrolled. A 2 x 2 factorial design was used. Calves were randomly enrolled into one of four groups; 1) IV flunixin and chromic cat gut (n = 6); 2) IV flunixin and polyglactin 910 (n = 6); 3) IV saline and chromic cat gut (n = 6); or 4) IV saline and polyglactin 910 (n = 6). Outcome variables collected were heart rate, plasma cortisol, substance P, mechanical nociception threshold (MNT) testing, infrared thermography (IRT), and gait analysis using a commercial pressure mat. Statistical analysis was completed using a linear mixed effect model.

Results

No treatment differences were observed for heart rate or substance P. Flunixin treated calves had lower MNT measures ($P < 0.0001$). Calves closed with chromic gut had higher incisional temperature via IRT ($P = 0.05$). A significant treatment and suture interaction was observed for plasma cortisol levels ($P = 0.05$). Calves in the chromic gut groups had increased gait parameters - contact force ($P = 0.05$), contact pressure ($P= 0.008$) and contact area ($P = 0.04$).

Significance

Flunixin improved nociception threshold tests and lowered cortisol concentration. Suture material results were mixed. Additional research is needed to further determine the optimal dosing regimen and analgesic combinations.