Elevated storage temperatures and concentration of large animal pharmaceuticals

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Introduction

Most veterinary pharmaceuticals are labelled to be stored at or below 77°F or 86°F. Previous work showed that temperatures in ambulatory veterinary practice vehicles exceeded those temperatures for 67-100% of days in the summer of 2013. The project objective was to determine the effect on the active ingredient concentrations of drug products exposed to temperatures above their recommended upper storage limit.

Materials and Methods

Five bottles of dinoprost, flunixin meglumine, GnRH, tulathromycin and xylazine were maintained at 65-75°F (room temperature). Five additional bottles of each product were maintained in a programmable chamber set to mimic temperatures recorded in one veterinary practice vehicle in summer 2013. All bottles were sampled on days 0, 40, 80, and 120. Samples were analyzed in duplicate by LC/MS/MS. Changes in active ingredient concentration were assessed by linear regression, and t-tests were performed to compare slopes of time:concentration curves for room temperature and environmental chamber-stored drugs.

Results

Slopes of drug concentrations over 120 days for all 5 drugs were less than 0.04, and there was no statistically significant difference between the slopes of concentrations over time for room temperature vs environmental chamber-stored bottles for any of the drugs.

Significance

No significant impact of elevated storage temperatures on product active ingredient was found in this study. However, the only outcome tested was active ingredient concentration on a limited number of products for 120 days, so practitioners are advised to protect all pharmaceuticals from elevated storage temperatures.

Risk factors associated with septic arthritis of the distal interphalangeal joint in beef cattle

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Introduction

Lameness is a condition associated with important economic losses in beef cattle operations (Hird DW. et al J Am Vet Med Assoc 1991; 198:554). Infection of the distal interphalangeal joint (DIJ) usually results in severe lameness and is an animal welfare concern (Desrochers A. et al J Am Vet Med Assoc 1995; 206: 1923); however, diagnosis of digital infection in beef cattle in the field is difficult and challenging for veterinarians. Identification of risk factors associated with septic arthritis of the DIJ in beef cattle could lead to early treatment and improve prognosis for future productive life. The objective of this study was to determine if factors such as duration of lameness, number of antibiotic treatments, severity of lameness, and the presence of asymmetric swelling at the coronary band of the affected foot are associated with septic arthritis of the DIJ in beef cattle.