

Pharmacokinetics And Efficacy Of Pregabalin In Horses

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The study seeks to investigate the behavior of an analgesic agent approved for use in humans for the treatment of persistent pain, as a first step in assessing the utility of this drug for pain control in horses.



Pharmaceutical options for pain management, especially alleviation of persistent pain in horses are limited by side effects. Pregabalin and gabapentin are two drugs used extensively in human medicine for the treatment of persistent pain. While both exert their effects in a similar manner, pregabalin is better absorbed. For example, in horses' gabapentin is characterized by very poor oral absorption whereas pregabalin is well absorbed. A single dose study of pregabalin in horses has been conducted, however the effects of this drug were not assessed. Given the potential benefits to the horse, the current proposal aims to build on the previous knowledge and assess the analgesic effects of pregabalin using well-established experimental models of thermal nociception and lameness following both a single dose and multiple administrations.

The way the horse's body processes the drug (pharmacokinetics) will also be further characterized.

In the first part of the study, 8 university owned research horses will receive a single oral administration of 4, 6 and 8 mg/kg of pregabalin and a 2-gram dose of phenylbutazone paste (positive control) in a 4-way balanced crossover design with a minimum 3-week drug free period in between treatments. Blood samples will be collected up to 72 hours following drug administration, drug concentrations measured, and pharmacokinetic parameters determined. Preand post-drug related behavior, heart rate and gastrointestinal sounds will be recorded. Response to noxious stimuli will be evaluated by determining the time of response to the application of heat and the effect on lameness utilizing a shoe model of mechanical lameness. In the second part of this study, eight horses will receive multiple oral doses of pregabalin or phenylbutazone paste, every 12 hours for a total of 9

doses, in a 2-way balanced crossover design with a 6-week drug free period between pregabalin and phenylbutazone administrations. The dose of pregabalin will be determined based on the results of the first part of the study. Blood samples will be collected throughout the dosing period for determination of drug concentrations. The effect of pregabalin on response to heat and mechanically induced lameness will be determined throughout the dosing period. For both the single and multiple administrations, statistical analyses will be conducted to assess differences in parameters prior to drug administration and post drug administration as well as to assess differences between pregabalin doses and phenylbutazone.

Importance to the Equine Industry: Pain control will have potential benefits to the horse while trying to limit the side effects.

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