Dose Titration of the Clinical Efficacy of Intravenous Phenylbutazone in a Reversible Model of Equine Foot Lameness

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Half-dose phenylbutazone was clinically effective for only a brief period compared with full or double doses. During the 12-hour monitoring period, there was no added analgesic benefit to giving a potentially toxic double dose of phenylbutazone in this model of acute foot pain. Authors' address: University of Illinois, Urbana, IL 61802; e-mail: jhf@illinois.edu. *Corresponding author. © 2011 AAEP.

1. Introduction
The objective of this experiment was to compare the clinical efficacy of various doses of phenylbutazone (PBZ) with a negative control. The hypothesis was that higher PBZ doses would result in improved efficacy in a dose-dependent manner when tested in a reversible model of foot lameness.

2. Materials and Methods
Eight horses were shod with adjustable heart bar shoes on one front foot. Weekly grade 4.0/5.0 lameness was induced by tightening a set screw against the heart bar. Heart rate (HR) and lameness score (LS) were monitored at rest; every 20 minutes after lameness induction for 5 hours; and hourly for another 8 hours. One hour after lameness induction, treatment was administered intravenously in a randomized, blinded manner and included negative control (isotonic saline: SAL) or PBZ at 2.2 (half dose), 4.4 (full dose), or 8.8 (double dose) mg/kg. Results were compared using repeated-measures ANOVA and Student-Newman-Keul test with the level of significance set at $p < 0.05$.

3. Results
HR and LS changes mirrored one another. Full- and double-dose PBZ reduced HR from 3.0 to 12.0 hours after administration ($p < 0.05$); there was no difference in response between full- and double-dose PBZ. Compared with SAL, half-dose PBZ reduced HR from 3.67 to 5.0 hours ($p < 0.05$) and reduced LS from 3.67 to 4.0 hours ($p < 0.05$) after administration.