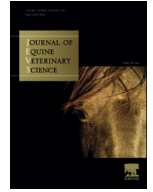




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Original Research

Modestly Improved Compliance and Apparent Comfort of Horses With Aversions to Mildly Aversive Routine Health Care Procedures Following Short-Term Alpha-Casozepine Supplementation

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ABSTRACT

Alpha-casozepine, a decapeptide derived from bovine milk α -s₁ casein, has well-documented anxiolytic properties in several species. To evaluate potential benefit of alpha-casozepine to horses' compliance and comfort with routine management and health care procedures, we blindly compared behavior of alpha-casozepine-supplemented and control-supplemented horses with known specific aversions to specific health care procedures. Twenty-six light horse mares were first screened for aversions based on compliance and apparent comfort during a standard battery of 12 health care examinations and treatment procedures. Based on quantitative behavioral analysis of video-recorded sessions, baseline compliance and/or comfort with each procedure was scored from 0 (unable to progress) to 10 (excellent compliance and relaxed comfort). Based on those results, 10 of the 26 horses were selected as five pairs that were matched for breed and the same two specific aversions. One of each pair was randomly assigned to alpha-casozepine supplementation (2,000 mg PO daily) and the other to control supplement for 5 days. On day 5 of supplementation, the standard battery of 12 procedures was repeated. For the five alpha-casozepine-supplemented subjects, compliance and/or comfort scores improved for seven of their 10 aversions compared with one of 10 for the five matched controls ($P < .01$, Fisher Exact). Average score increased 1.5 (standard error [SE] = 0.87) points for alpha-casozepine aversions compared with an average decrease of 0.92 (SE = 0.61) points for matched control aversions ($P < .05$, Wilcoxon signed ranks). These results indicate a modest benefit of alpha-casozepine supplementation to horses for improvement of compliance and apparent comfort with mildly aversive routine health care procedures.

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1. Introduction

The nutritional supplement alpha-casozepine, a benzodiazepine-like decapeptide derived from bovine milk

α -s₁ casein, has been found to have calmativ anxiolytic-like properties in humans as well as several laboratory and domestic animal species, using a variety of stress models [1–5]. In rats, alpha-casozepine was found to have anxiolytic effects comparable with those of the benzodiazepine diazepam, both for the conditioned defensive burying and the elevated plus maze stress model scenarios [6,7]. In domestic pet cats presented for fear-related behavior problems, in a randomized, blind, clinical trial across multiple veterinary practices, oral alpha-casozepine

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treatment resulted in significantly greater client-reported improvement compared with placebo treatment [8]. In domestic pet dogs, in similar randomized blind clinical trials, alpha-casozepine treatment of anxiety-related disorders resulted in improvement in rating on a standard inventory of emotional disorders symptoms (Evaluation of Dog's Emotional Disorders, known as EDED) equal to that of the standard reference treatment selegeline [9]. In adult ponies undergoing transition from lifelong semiferal management to standard domestic housing and handling, alpha-casozepine-supplemented subjects progressed more rapidly with acclimation and training with fewer avoidance and stress behavior responses than matched-control counterparts [10].

To further explore the usefulness of alpha-casozepine supplementation in horses, the objective of the present study was to blindly evaluate the effects of alpha-casozepine on compliance and apparent comfort behavior of horses with established aversions to certain specific mildly aversive routine management and health care procedures.

2. Materials and Methods

2.1. General Procedure

A herd of 26 mares was evaluated for compliance and apparent comfort during a standard battery of procedures simulating mildly aversive routine management and health care examinations and treatments. From the 26 mares, 10 mares comprising five pairs matched for breed as well as for the two same specific aversions were selected for further study. Except for one of the two aversions for one of the five pairs, baseline rating scores were relatively similar (within three points on the 0–10 scale) for each of their two aversions. One of each pair was then randomly assigned to receive alpha-casozepine, and the other assigned to control supplement for five consecutive days. On day 5 of supplementation, procedure compliance and comfort were again assessed using the same standard battery of 12 procedures. Change in compliance and/or comfort rating score from the screening baseline to supplement day 5 reassessment for alpha-casozepine-supplemented and control-supplemented mares was compared.

2.2. Subjects

The 10 subjects (five matched pairs selected after initial evaluation of 26 mares), included two Standardbred and eight Thoroughbred mares, aged 3–13 years and weighing approximately 450–600 kg. These mares had been resident from 3 months to greater than 10 years at the University of Pennsylvania School of Veterinary Medicine in Chester County Pennsylvania for use primarily in teaching, research, and/or as embryo transfer recipients. They were maintained in pasture groups with supplemental hay as required to maintain good body condition. All subjects were generally familiar and compliant with basic ground handling and reproductive examinations involving a number of different caretakers and handlers of varying skill and experience levels typical of such a clinical training environment.

2.3. Specific Health Care Procedures

The standard assessment battery of routine health care procedures included, in order performed (1) entering as led into a small examination room (approximately 6 × 6.5 m), which was novel to the subjects, brightly illuminated with low sloped ceiling, novel rubber flooring, windows on three walls, and fluorescent lighting; (2) lifting each foot sequentially from left front counterclockwise to right front; (3) rectal thermometer insertion; (4) intramuscular needle stick (neck); (5) jugular needle stick; (6) oral examination; (7) oral medication; (8) eye examination; (9) eye medication; (10) intranasal application of saline; (11) lip twitch application; and (12) loading onto a stock trailer. Assessments were conducted from early to late afternoon. All procedures were video recorded.

The same equine veterinary technician consistently performed the procedures, whereas a second individual consistently assisted with handling the subject. Both were skilled and experienced with equine health care procedures and horse handling. The veterinary technician remained unaware of the purpose of the study or group assignments. The assistant, although aware of the purpose and design of the study, remained unaware of animal treatment assignments. This team had worked together handling horses for veterinary and health care procedures for more than 10 years. Neither had worked routinely with these particular mares. For each session, the technician led the mare from its pasture into the examination room using a cotton lead attached to the lower ring of the halter, whereas the assistant directed the video camera to maintain video view of the mare while entering the room. Once the mare was positioned in the center of the examination room, the lead was transferred to the assistant while the technician proceeded through the battery of examinations and treatments. At the completion of the examination and treatment procedures, the horse was taken by the examination technician and led from the examination room to a stock trailer positioned approximately 10 m outside the examination room entry and/or exit door, whereas the assistant repositioned the video camera to maintain view for continued recording of the trailer loading process. The assistant then stood to the side of the trailer to manage the stock trailer door. The handling manner for loading was a calm and confident positive enticement and reinforcement-based non-confrontational style routinely used by this technician-assistant team. After each session before the assessment of another subject, the examination room and trailer were cleaned and all equipment and supplies arranged in a standard fashion.

During the week of this study, the subjects remained pastured with their herd with no handling other than hand-feeding of supplements for this study and the baseline and reassessment examinations.

2.4. Supplements

Alpha-casozepine and control supplement commenced 2 days after the baseline behavior assessment. Alpha-casozepine supplementation consisted of 2,000 mg alpha-casozepine (Zylkene; Merck Animal Health, Summit, NJ)

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