Clinical Trial of the Use of Omeprazole in Healing of Gastric Ulcers in Horses Maintained in Active Race Training

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Omeprazole, administered orally once daily, was effective at reducing the severity of gastric ulcers or eliminating them completely in Thoroughbreds in active race training. Authors' address: Comparative Gastroenterology Laboratory, Dept. of Veterinary Surgical and Radiological Sciences, University of California at Davis, Davis, CA 95616. © 1997 AAEP.

1. Introduction
Gastric ulcers have been identified in 80% of racing Thoroughbreds. Omeprazole inhibits \( \text{H}^+\text{K}^+\text{ATPase}, \) the enzyme responsible for the final production of acid by parietal cells. In horses, orally administered omeprazole maintains stomach pH >4 and inhibits gastric secretion for >27 h. This study investigated omeprazole in the treatment of naturally occurring gastric ulceration in Thoroughbred racehorses.

2. Materials and Methods

A. Study Design
The study was designed as a placebo controlled, double blind, matched paired trial. Fourteen Thoroughbred horses in active race training with naturally occurring moderate to extensively severe ulceration of the squamous portion of the stomach were divided into two groups: group 1, vehicle paste PO q 24 h; group 2, omeprazole 1.54 g in vehicle PO q 24 h. Treatments were scheduled to be given for 28 days.

B. Endoscopic Examination
Gastroendoscopic examinations were performed within 4 days of initiation of the treatment (day 0), at days 13–17, and at days 25–31. Blood samples were collected at the time of the initial, second, and third endoscopic examinations. Two horses that had healed ulcers on days 27 and 31 were reexamined on days 35 and 49. During the examination, five locations in the stomach were scored from 0 to 5: 0, normal mucosa; 1, mucosal erosions: superficial mucosal erosions; 2, mild ulceration: multifocal superficial ulceration; 3, moderate ulceration: extensive superficial appearing or deeper focal lesions; 4, severe ulceration: deep multifocal or generalized ulceration; and 5, extensive severe ulceration: extensive multifocal ulceration.

C. Selection Protocol
Fourteen of the horses with an ulcer score >3 were paired depending on their lesion score and location. Within each pair, horses were randomly allocated to group 1 or 2.
D. Management and Exercise
No major changes had occurred in the horse’s diet for 14 days prior to the start of treatment. The composition of the diet was based on the horse’s level of activity and the trainer’s preference. Horses were maintained in their normal training and racing routine.

E. Concurrent Medication
Horses on the trial did not receive concurrent antiulcer medications. Although trainers attempted not to administer concurrent medications, there were occasions when horses received therapeutic drugs for racing ailments.

F. Acceptability Scoring
The acceptability of the paste was assessed on a score of 1 (paste accepted and swallowed paste willingly) to 5 (paste could not be administered) on days 0, 7, 14, 21, and 28.

3. Results
In general, horses received a mixture of sweet feed and oats either once or twice a day, and hay. Blood taken for hematology and biochemistry showed no significant abnormalities. The majority of horses were maintained in active race training typical for horses in the United States. Four horses were eliminated from the study after the day 13–17 endoscopic examination because of a 10% drop in body weight (group 1), an aryepiglottic ulcer (group 1), at trainer’s request (group 1), or because of relocation to another racetrack (group 2). The remainder of horses had no major health problems for the duration of the study.

Both the drug and the paste were well tolerated in all horses. Horses scored a 1 on all but two occasions, when a 2 was scored. Concurrent medication (phenylbutazone) was given to three horses in the group receiving the vehicle only. Two horses were each given a single dose and one horse was given 2 g of phenylbutazone per day for 21 days.

In the placebo group, the mean grade of ulceration remained unchanged for the duration of the study. The administration of the drug was associated with a significant decrease in the ulcer score from all regions of the stomach. In two horses, ulcers were eliminated by the last day of the trial. In the remaining horses, the moderate to severe ulceration was generally reduced to mild erosion or mild ulceration. In the two horses in which the ulcers were eliminated, moderate ulceration was apparent when the horses were endoscopically examined 2 weeks following cessation of omeprazole.

4. Discussion
Omeprazole, administered once daily at the dosage in this study, was effective in eliminating or reducing the severity of gastric ulcers in Thoroughbred horses in active race training. Gastric ulcers have been previously treated with histamine H2 receptor antagonists, aluminum hydroxide–magnesium hydroxide, and sucralfate.4–6 Disadvantages associated with these drugs include the requirement for frequent dosing, the need to administer large volumes, and a lack of efficacy in treating ulcers of the squamous mucosa, respectively.5,7,8 In contrast, omeprazole required once daily dosing, was easily administered, was well tolerated, and led to rapid resolution of ulceration.

References