

THE EFFECTS OF U-GARD IN A FIELD TRIAL STUDY ON THE TREATMENT OF GASTRIC ULCERS IN THOROUGHBREDS IN ACTIVE RACE TRAINING.

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Summary

This study recorded the efficacy of U-Gard in the healing of gastric ulcers within a 73-day period in Thoroughbreds in active race training. Six horses suffering from gastric lesions of differing severity were selected from a larger group of clinical cases on the basis of gastroscopic examination. The six subjects were all in a similarly treated group. The first endoscopies were performed on day 0 and the second endoscopies were performed anywhere from day 49 to day 73. The degree of severity of the gastric erosions or ulcers were evaluated independently in the mucosal regions with the aid of a scoring system. All horses in the study showed good acceptance of the product and no side effects were reported. The U-Gard powder was administered twice a day as a topical dressing in the feed. After five (5) days of administration five of the six horses exhibited appetite improvement. The individual that didn't show marked appetite improvement was and always has been a "good eater". All six individuals seemed to have an improved attitude for training. The horse that showed the most dramatic improvement had been given heaping scoops of the product. The other five horses were given measured doses and still showed some improvement. Race performance data indicates all six horses improved in their finish positions. Ulcer Grade improvements were impressive. Moonshine Jack went from a Grade 3 ulcer to a complete healing. Raja's Strength was originally diagnosed with a Grade 3 ulcer improved to a Grade 1. JoeK's most ignorant went from a Grade 2 to a .5 lesion. Canyon Crook went from a Grade 3 ulcer to a Grade 1. Indysciabable improved from a Grade 2 ulcer to a .5 lesion, and Tuckalucky Lady had a Grade 4 ulcer and improved to a Grade 2 ulcer. All these are evident by the endoscopic photographs. The results of this study in 6 horses indicates that U-Gard can have a beneficial effect on the healing of gastric ulcers in thoroughbreds in active race training.

Introduction

Gastric ulceration in Thoroughbreds in active race training occurs in approximately 80% of mature horses. (Hamond et al. 1986; Murray 1992b; Murray et al. 1996) The squamous epithelium extends from the esophagus to cover the fundic portion of the stomach. The squamous mucosa meets the glandular mucosa at a raised area called the margo plicatus. In mature horses gastric ulcers are most often found within the squamous mucosa next to the margo plicatus. Gastric ulcers can result in episodes of colic, decreased appetite, weight loss, and/or chronic diarrhea. Treatment options include Omeprazole, Cimetidine, or various other supplements currently being marketed. U-Gard is one of these supplements whose formulation is derived from Calcium carbonate, Kaolin, Aluminum calcium silicate, and Iron oxide.

Materials and methods

Study design

This study was conducted as a field trial at a thoroughbred training and race facility in Southern Illinois. All horses were client owned and were treated with due regard to their welfare. Trainers were responsible for administering the product twice a day. Product use was monitored by the same research team member throughout the study. Animals were housed in stalls and remained in active race training throughout the study. All six horses were fed a typical racehorse diet of large amounts of Sweet Feed (10 to 12 quarts a day) plus vitamins and electrolytes. Physical examinations were conducted and body weights recorded on day 0 and then again on the day of the final endoscopy.

Endoscopic examination

Food was withheld for at least 8 to 12 hours prior to endoscopic examination. Water was withheld for 2 to 4 hours prior to endoscopy. This allowed visualization of the squamous mucosa and a portion of the glandular mucosa along the greater curvature of the stomach. Horses were sedated with a mixture of Turbogesic and Rompun I.V. A nose twitch was applied before the 3-meter video gastroendoscope was passed via the right nostril into the stomach. Feed or bedding material was removed from the surface of the stomach by a stream of water. The stomach was searched systematically and lesions visualized within the squamous mucosa adjacent to the margo plicatus and along the greater curvature, lesser curvature, between the lesser and greater curvatures on the right side of the stomach and within the dorsal fundus. A portion of the glandular mucosa along the greater curvature was also inspected. Each site was scored by Dr. Morgan from 0 to 5.

0 = Normal mucosa

1 = Mucosal erosions: hyperaemia and/or hyperkeratosis; or superficial mucosal erosions.

2 = Mild ulceration: multifocal or generalized areas of ulceration appearing to be superficial with or without hyperaemia and mild/moderate hyperkeratosis.

3 = Moderate ulceration: extensive superficial appearing lesions or deeper focal lesions with or without proliferation along lesion margins and small amount of bleeding.

4 = Sever ulceration: deep appearing multifocal or generalized ulceration with or without moderate mucosal proliferation along lesion margins and active hemorrhage.

5 = Extensive severe ulceration: extensive areas of deep ulcerations with or without extensive mucosal proliferation along lesion margins and active hemorrhage.

Images from the squamous mucosa were obtained consistently and stored as hard copies. If lesions were observed in the glandular portion of the stomach, hard copies were also obtained of this region.

Inclusion criteria

For inclusion in the field trial horses had to have at least a grade 1 lesion at one site within the squamous mucosa. Subjects had to be in active race training and have had no major alterations in training or feeding for at least 14 days prior to the start of the study (Day 0) and throughout the course of the study. In addition, horses did not have a history of H₂ receptor antagonist or proton pump inhibitor treatment within 30 days of the start of the trial.

Procedure of trial

Endoscopies were performed on Day 0 to establish study individuals and to assess lesion or ulcer grade. On Day 1, at approximately 10 to 12 hour intervals, U-Gard administration was initiated by the same operator. Horses were observed daily for signs of ill health and trainers were questioned daily on behavior and eating habits by the same member of the research team. Records of the horses diet, exercise, any medical problems and concurrent medication administration were maintained by the research team. Administration of the product was recorded by the person responsible for each horse. The final endoscopy was performed on each horse conducive to the race and training schedule. This resulted in the variation of days for the final endoscopy (ranging from Day 49 to Day 73).

Results

There were 3 geldings and 3 fillies at the start of the study. There were also 2 substitute horses, a filly and a gelding given the product in case any horses were withdrawn before the end of the study. As it were, a filly was withdrawn at the trainers request due to inconsistencies with the administration (there was not enough product used, therefore we knew the groom was not giving the product everyday). The substitute filly was used as a back up. Phenylbutazone and/or flunixin meglumine (10 mL) was generally administered prior to or following a race, or because of an injury. Furesomide (150 mg) for the prevention of exercised induced pulmonary hemorrhage was administered 4 hours before a race. Other drugs used were Levoxyl (for thyroid dysfunction), polysulfated glycosaminoglycan, ivermectin, ketofen, eqstim and a variety of vitamin and mineral supplements. In all six individuals receiving U-Gard all showed beneficial results in their ulcer grading. One showed complete healing and is continuing on U-Gard. Four of the five remaining horses are also on U-Gard. One trainer opted to quit giving product to see what happens. Weight gain was determined through the use of a weight tape. Following are the data conclusions on all the subjects, as well as before and after endoscopic photographs of Moonshine Jack and "before" and "after" prints since they exhibited the most dramatic outer "appearance" changes.

BODY CONDITION SCORE*

Score *Description*

- 1** **Poor.** *The horse is emaciated. The spinous processes (backbone), ribs, tailhead and hooks and pins all project prominently. The bone structures of the withers, shoulders and neck are easily noticeable, and no fat can be felt anywhere.*

- 2** **Very Thin.** *The spinous processes are prominent. The ribs, tailhead and pelvic bones stand out, and bone structures of the withers, neck and shoulders are faintly discernible.*

- 3** **Thin.** *The spinous processes stand out, but fat covers them to midpoint. Very slight fat cover can be felt over the ribs, but the spinous processes and rib are easily discernible. The tailhead is prominent but individual vertebrae cannot be seen. Hook bones are visible but appear rounded. Pin bones cannot be seen. The withers, shoulders and neck are accentuated.*

- 4** **Moderately Thin.** *The horse has a negative crease along its back and the outline of the ribs can just be seen. Fat can be felt around the tailhead. The hook bones cannot be seen and the withers, neck and shoulders do not look obviously thin.*

- 5** **Moderate.** *The back is level. Ribs cannot be seen but can be easily felt. Fat around the tailhead feels slightly spongy. The withers look rounded and the shoulder and neck blend smoothly into the body.*

- 6** **Moderate to Fleishy.** *There may be a slight crease down the back. Fat around the tailhead feels soft and fat over the ribs feels spongy. There are small deposits along the sides of the withers, behind the shoulders and along the sides of the neck.*

- 7** **Fleishy.** *There may be a crease down the back. Individual ribs can be felt, but there is noticeable fat between the ribs. Fat around the tailhead is soft. Fat is noticeable in the withers, the neck and behind the shoulders.*

- 8** **Fat.** *The horse has a crease down the back. Spaces between ribs are so filled with fat that the ribs are difficult to feel. The area along the withers*

is filled with fat, and fat around the tailhead feels very soft. The space behind the shoulders is filled in flush and some fat is deposited along the inner buttocks.

- 9 Extremely Fat.** *The crease down the back is very obvious. Fat appears in patches over the ribs and there is bulging fat around the tailhead, withers, shoulders and neck. Fat along the inner buttocks may cause buttocks to rub together, and the flank is filled in flush.*

*Guidelines established by the American Association of Equine Practitioners.

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SUBJECT	Day 1 Diagnosis	Conclusion
Moonshine Jack	Grade 3 ulcer	Complete healing
Raja's Strength	Grade 3 ulcer	Grade 1 ulcer
JoeK'smostignorant	Grade 2 ulcer	.5 lesion
Canyon Crook	Grade 3 ulcer	Grade 1 ulcer
Indyscribable	Grade 2 ulcer	.5 lesion
Tuckalucky Lady	Grade 4 ulcer	Grade 2 ulcer



Moonshine Jack at Beginning of Trial with Grade 3 Ulcers



Moonshine Jack at Conclusion of Trial