Gastric ulcers: avoidable or just a fact of life?

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The problem

The prevalence of gastric ulceration in Thoroughbreds in race training varies from 70 to 94%, and most sport horses are similarly affected. The horse's stomach contains two different types of lining – the squamous mucosa on the top half and the glandular mucosa on the bottom. Ulcers can happen in either location, but are much more common in the squamous portion. The squamous mucosa is essentially similar to the lining of the esophagus, and the glandular mucosa contains the acid-producing cells. Most equine gastric ulcers affect the squamous mucosa. But, because ulcers can affect various portions of the stomach, causing a variety of clinical signs, the umbrella term Equine Gastric Ulcer Syndrome (EGUS) has been proposed to describe the syndrome. Excess acid exposure is the predominant mechanism responsible for squamous mucosal ulceration, although many details remain unclear. The correlation between exercise and ulcer disease has not yet been defined despite the high prevalence. Preliminary work suggests that compression of the stomach occurs during exercise at a trot or gallop on a treadmill, which can result in acid exposure to the squamous mucosa.

The signs

Clinical signs attributable to EGUS in older horses are variable and classically include anorexia (not eating), and chronic or intermittent colic of varying severity. Many horses with endoscopic evidence of disease may appear to be clinically normal or have vague signs that include decreased consumption of concentrates, postprandial episodes of colic, poor performance or failure to train up to expectations, poor quality haircoat, and decreased condition or failure to thrive. Diarrhea is not typically associated with gastric ulceration.

Diagnosis

Although a diagnosis of EGUS can be suspected based upon clinical signs and response to treatment, the only current method of confirmation is via gastroscopy, which can easily be performed in the standing horse with mild sedation after a 12-18 hour fast.

Treatment

Multiple treatments have been suggested for EGUS. Because acid has been implicated as the most important cause of squamous ulcer disease, most anti-ulcer therapy centers on decreasing gastric acid. Signs of colic that result from gastric ulcers often resolve within 48 hours following the start of therapy. Improvements in appetite, performance, and attitude can be noted within 1 to 3 weeks. The principal therapeutic options for ulcer treatment include H_2 antagonists (cimetidine, ranitidine, famotidine), proton pump inhibitors or PPIs (omeprazole, pantoprazole, rabeprazole, esomeprazole), and the mucosal adherent sucralfate.

The H_2 antagonists suppress hydrochloric acid secretion through competitive inhibition of histamine receptors on the parietal cell, which secretes acid in the stomach. Individual response to these drugs can vary, especially at lower dosages. The main advantage of these drugs is lower

cost. The main disadvantages include frequency of treatment (3 times a day) and decreased efficacy when animals are kept in training relative to the proton pump inhibitors.

Proton pump inhibitors (PPIs) block secretion of acid at the parietal cell membrane by irreversibly binding to the proton pump of the cell. These drugs have a prolonged anti-secretory effect, which allows for once-daily dosing. Omeprazole is the only agent approved by the FDA for the treatment of EGUS (GastroGard, Merial, Ltd.). The other mentioned PPIs are marketed for human patients. After initial treatment (28 days), a lower daily dose has been shown to decrease or prevent the recurrence of disease in animals maintained in training, and is the basis for UlcerGard (Merial, Ltd.). It is very important to note that the powder form of omeprazole is rapidly degraded in an acidic environment, thus the efficacy of compounded omeprazole is highly variable and these formulations will very often not result in ulcer healing. Omeprazole has been shown superior to ranitidine for healing of squamous mucosal ulceration in horses in active race training.

Prevention

How to prevent ulcers is one of the questions we are asked most commonly. Unfortunately, short of leaving horses in a field and out of work, there is not a great answer to this question. Recently, feeding an alfalfa hay/concentrate diet has been shown to reduce the severity of gastric ulceration in young horses kept in work, relative to a grass hay/concentrate diet. Other factors associated with a decreased risk of gastric ulceration in Thoroughbreds in race training include turnout with other horses and training on the property where horses are normally housed.