

Evaluation of an Antacid, Glutamine and Soluble Fibre product for the treatment of mild to moderate Gastric Ulcers in Horses

Investigators: Dr. Große-Lembeck und Partner Frau Dr. Susanne Blessing, Pferdeklinik München-Parsdorf, Germany
Sponsors: NutriScience Ltd, Waterford, Ireland

SUMMARY

This study investigated the effect of a combination food supplement containing antacids, glutamine and soluble fibres (Gastro) to treat mild to moderate gastric ulcers in horses.

6 horses in training identified by endoscopic examination to have various degrees of gastric ulceration were given the food supplement, GastroCare, for a period of 30 days after which they had a further endoscopy. The results demonstrated that 5 out of the 6 horses had significant improvement in gastric ulceration after 30 days with reduction or elimination of the presenting symptoms.

This study confirmed the initial findings from a 2005 study which found that the food supplement, GastroCare, can be used in the management of stomach ulcers in horses, both for preventing their occurrence as well as for avoiding their recurrence.

Due to the composition of these supplements they can be given without risk up to the day of the competition.

INTRODUCTION

Since the mid 1980's and with the development of gastric endoscopy in horses, veterinarians have discovered that many horses suffer from gastric ulcers. In some cases, the presence of ulcers would not have been initially suspected, as some horses hardly expressed signs of discomfort or pain. In fact many research studies have indicated that gastric ulcers are extremely common in horses with up to a 90% incidence reported in racehorses and up to 60%+ in the foal population.

The nature of clinical symptoms in a horse suffering from ulcers can be very variable and sometime subtle, ranging from changes in attitude to clear colic in the most sensitive horse. Horses with ulcers can also grind their teeth or crib bite, others will frequently interrupt eating, leaving grain in their feed trough or drinking more than they used to.

Obviously gastric ulcers can have a detrimental impact on the performances of sport horses, mainly because of the pain they are likely to trigger during work but also during meals. The horses suffering from ulcers can loose condition with weight loss, dull coat and poor muscular development, although their work load is sustained. They can also run short of energy during work or even intolerant to exercise. The horses in this study demonstrated many of these expected symptoms with all owners reporting poor performance. (Table 2)

GASTRIC ULCERS IN HORSES

Despite their size, horses have a proportionally small stomach. In their natural environment, horses spend their time eating grass, which transits rapidly through the stomach. Unlike other species whose stomach produces acid only during meal times, the equine stomach produces acid continuously. If a horse is fed only twice a day and moreover if its diet is mainly composed of concentrates, food will be quickly digested and the horse will go on an empty, acid producing stomach. Without food to digest, the acid can irritate or even attack the walls of the stomach, eventually resulting in the occurrence of ulcers.

Several studies have shown that the incidence of ulcers is proportional to the level of work. Stress clearly can be a major promoting factor as it interferes with physiological mechanisms of mucosal protection and acid regulation. But stress is not the only likely cause. Physical activity brings the most acid sensitive portion of the stomach's mucosa into prolonged contact with the gastric acid content. In a scientific study, horses were intubated with a catheter placed inside the stomach while exercising on a treadmill. The study showed that the acidity (determined by the measurement of intragastric pH) in the most sensitive portion of the stomach increased with increasing pace.

MANAGEMENT OF GASTRIC ULCERS

Providing sufficient fibre source is an essential element in a horse's diet, the more so if the animal is kept in a box on a non-edible bedding (wood shavings or cardboard for instance). As fibres are digested more slowly, the stomach stays fuller for a longer period of time.

However, gastric ulcers seldom heal spontaneously in horses and to initiate a healing process, the horse's living and working conditions have to be completely reassessed.

The most efficient measures are also the most radical: a prolonged stay out at pasture can allow an ulcer-affected horse to fully recover, as well as reducing significantly its workload, the frequency of competitions and transportations. Other simple measures can also contribute to relieve the horse and avoid a worsening of the ulcers like, for instance, dividing the horse's daily ration into smaller but more frequent meals and to ensure a permanent availability of forages. But how can owners or trainers apply such measures to their sport horses when the competition season is in full course?

The standard medical treatment for gastric ulcers in foals and horses with extensive gastric ulceration is omeprazole, a pharmaceutical product which inhibits the production of acid in the stomach, even when the horses are maintained in active training. The price of this and other similar substances can be a limiting factor in their use, as well as the fact that they cannot avoid the recurrence of ulcers, which are unfortunately quiet frequent. The use of these substances is also under strict regulation for most competitions.

DIETARY APPROACH TO MANAGEMENT OF GASTRIC ULCERS

A more practical approach for long term prevention and management is to use a combination product which will reduce the acidity of the stomach (by increasing the pH), promote local healing of the ulceration and increase the fibre intake daily.

NutriScience has developed a product, GastroCare, to manage mild to moderate gastric ulceration. GastroCare works in three ways; as a buffer for the acid, provides glutamine to increase local healing; and lecithin and pectin soluble fibres to adsorb excess acid.

This study evaluated GastroCare as the sole intervention in the treatment of gastric ulcers in performance horses.

STUDY DESIGN

In this study the investigators identified client owned horses with suspected gastric ulcers.

Horses included in the study had a gastric ulceration score of 2 or higher and had not received anti-ulcer medication for at least 28 days prior to the start of the study.

All horses were client owned with no change made to their daily routine or nutrition, other than the addition of GastroCare. No additional ulcer medication was administered to the horses in the study.

Day 0:

1. Examination and Endoscopy followed by 30 days of treatment with GastroCare

Day 30:

2. Examination and Endoscopy

Endoscopy Procedure:

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. Horses were sedated with Rompun I.V. A nose twitch was applied before the video gastroendoscope was passed via the nostril into the stomach. The stomach was searched systematically. Each horse was scored by the veterinarian from 0 to 5. The same veterinarian carried out the endoscopy at Day 30.

Gastric Ulcer Scoring:

- 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 amounts of bleeding.
- 4 = Severe ulceration: deep appearing multifocal or generalized ulceration with or without moderate mucosal proliferation along lesion margins and active haemorrhage.
- 5 = Extensive severe ulceration: extensive areas of deep ulcerations with or without extensive mucosal proliferation along lesion margins and active haemorrhage.

An Evaluation Sheet was completed for each horse at the beginning and at the second endoscopic examination as well as a brief summary of the clinical changes.

STUDY RESULTS

6 Horses were initially included in the study.

The horses presented to the veterinarian with various symptoms (Table 2).

4 out of 6 horses had intermittent colics; 4 out of 6 displayed changes in behaviour and attitude; and all 6 horses had reported poor performance.

Clinical Symptoms

	Horse Case Number					
Clinical Symptoms	1	2	3	4	5	6
Poor Appetite	n	y	n	n	y	y
Rough Hair	n	y	n	y	y	N
Excessive salivation	n	n	n	n	n	N
Weight Loss	y	y	n	n	y	N
Recurrent colic	y	y	y	y	n	n
Change in Attitude	y	y	n	y	n	Y
Stable Vice	n	Crib biting	n	Mild colic	n	Yes
Teeth Grinding	n	n	n	n	n	N
Diarrhoea	N	n	n	n	n	N
Poor Performance	y	y	y	y	y	Y
Body Condition (1-9)	5	3	7	6	5	5
Comment	Recurring colic 2/12	Recurring colic, weight loss 100kg in 6 months	Severe colic then constipation	Mild colic symptoms, lays down during day	Not trainable, poor performance	Moved barn & problems horses

Table 2

Endoscopy Results

Horse Case Number

Endoscopy Results	1	2	3	4	5	6
Day 1						
Gastric Ulcer Score	3	3	4	3	1	4
Comment	Local lesions & Bleeding		Severe local lesions around the pylorus	small amount of bleeding around	Mild inflammation localised	Severe lesions wide-spread
Weight kg	540	400	650	500	650	400
Day 30						
Gastric Ulcer Score	0	1	1	0	3	1
Comment	No colic symptoms	No further colic symptoms	Still a small lesion with hyperkeratosis	Symptom free according to owner	No change in symptoms	Improved performance & attitude
Weight	540	400	650	500	650	400
Change in Ulcer Score	3	2	3	3	-2	3

Table 3

Summary Results

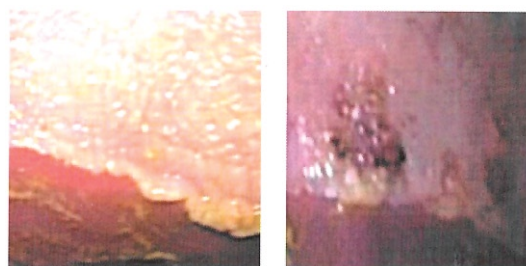
- 5 out of the 6 subjects showed significant improvement with the average ulcer score improving by 2 or more grades
- The 5 with a positive response, after only 30 days on treatment went from moderate ulceration to mild or no evidence of ulceration.
- In addition to significant improvement via scope the owner feedback was that all horses improved in performance and attitude with no further reported colic symptoms.

DISCUSSION

Antacids initiate healing gastric ulceration by buffering excessive gastric acid and giving protection to the gastric mucosa. It has also been suggested (Lambrecht, 1993) that some antacids protect the gastric mucosa by enhancing the local production of postaglandins which increase blood flow to the region. The antacid in GastroCare mimics the action of saliva by buffering some of the gastric acid. This helps protect the upper part of the stomach which has no protective lining. Each measure of GastroCare provides approx 6 hours of protection.

The Pectin-lecithin fibre complex helps prevent the harmful effects of bile acid reflux by stabilising mucus and increasing the buffer capacity of the stomach contents. Lecithin on the other hand, forms a highly hydrophobic layer and thereby strengthens the acid-repelling protective layer of the mucosal cells. The lecithin/pectin soluble fibre complex in GastroCare absorbs some of the excess acid keeping more acid away from the stomach lining

Finally the glutamine in GastroCare provides the essential energy source for the rapid regeneration of the stomach lining. Glutamine is an amino acid which is the primary source of fuel for enterocytes (cells lining the inside of the small intestine)



Healthy Gastric Mucosa Grade 3 Ulceration

In conclusion, this study albeit with small numbers demonstrated the efficiency of a combination supplement including an antacid, glutamine and soluble fibres in the improvement, and in some cases the complete healing, of moderate gastric ulcer lesions. The study samples were all horses-in-training – a population particularly at risk of gastric ulceration.

This study confirmed the initial findings from a 2005 study which found that the food supplement, GastroCare, can be used in the management of stomach ulcers in horses, both for preventing their occurrence as well as for avoiding their recurrence.

Due to the composition of these supplements they can be given without risk up to the day of the competition.

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