



GI Tract/Ulcers

BY CHRISTY WEST

Deworming Drug Efficacy in Europe

Numerous researchers have noted that internal parasites in horses are growing more resistant to the deworming drugs (anthelmintics) we have available. A study of European horses provided the latest evidence in support of the same grim reality.

“In the past, the selection pressure generated by erroneous use—or even abuse—of anthelmintics has led to the spread of drug-resistant parasitic populations,” said Donato Traversa, DVM, PhD, Dipl. EVPC, of the University of Teramo, Italy. “This is particularly true for cyathostomins (small strongyles); recent evidence of reduced efficacy has been reported in Europe, the United States, and Latin America.”

More than 1,700 cyathostomin-infected horses on 102 properties in Italy, the United Kingdom, and Germany were split into four groups and administered fenbendazole, pyrantel, ivermectin, or moxidectin.

They found fecal egg count reductions of less than 90% 14-16 days after deworming (indicative of drug resistance) as follows:

- Fenbendazole: 36% of Italian properties, 88.2% of U.K. properties, and 76.9% of German properties.
- Pyrantel: 31.6% of Italian, 18.1% of U.K., and 25% of German properties.
- Ivermectin: 4.5% of U.K. and 1.6% of Italian properties.
- Moxidectin: One property in Germany.

“It is necessary for practitioners and owners to take a leading role in preserving the efficacy of the active anthelmintics by measures such as selective treatments or drug rotations,” noted Traversa.

Improving Peritonitis Treatment

“Prompt and aggressive treatment of peritonitis is often essential in horses,”

began Olivier M. Lepage, DMV, PhD, Dipl. ECVS, of the University of Lyon in France.

Peritonitis, defined as inflammation of the peritoneum (membrane lining the abdomen), can result from many problems, from disease to infection following injury or colic/colic surgery. Regardless of the cause, vets commonly lavage (flush) the

lavage fluids in adult standing horses,” he said, noting that more than 60% of the lavage solution was recovered in less than an hour in 83% of procedures using the fenestrated catheter, and in only 33% of procedures with the Foley catheter. Using two of the fenestrated catheters instead of one did not appear to offer any additional benefit.

“Based on this study and on the authors’ experience, this catheter is justified in clinical cases of peritonitis, pleurisy in adults, and uroperitoneum in foals,” Lepage said.



COURTESY DR. OLIVIER LEPAGE/AAEP PROCEEDINGS

Researchers on a peritonitis study used a multiple fenestrated catheter to lavage the abdominal cavity of a mare after surgery for foreign body extraction from the diaphragm.

abdomen after handling the primary cause of the peritonitis. They use many liters of fluid to lavage the abdomen, and they must get it all out—the quicker, the better.

Lepage and colleagues compared drainage rates of a special multiple fenestrated catheter (having holes along its length) and a typical Foley catheter (with one hole at the end). “The multiple fenestrated balloon catheter was effective for the collection of

Painkillers and Gastric Ulcers

If you’ve ever given the oral non-steroidal anti-inflammatory drug phenylbutazone (Bute) to a horse, you’ve probably been warned that it can cause gastric ulcers if you give too much or give it for too long. Thus, there’s always interest in pain-relieving medications that work while causing less gastric irritation or none at all.

Suxibuzone is a medication often given to horses because the horse’s body converts it to Bute, in theory giving it all the anti-inflammatory and pain-relieving effects of Bute while minimizing stomach irritation. However, a study presented at the convention might have disproved that theory, at least for recommended dosages.

Frank M. Andrews, DVM, MS, director of the Equine Health Studies Program at Louisiana State University, reported that for the study, 18

horses were housed in stalls, fed sweet feed and hay twice daily, and given omeprazole for eight days before anti-inflammatory medication was given to reduce any pre-existing ulcer scores. Horses were then divided into three groups for a 15-day medication period:

- Group 1 received 2 grams of Bute twice daily at 12-hour intervals on the first day, then 1 gram twice a day.

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- Group 2 received 3 grams of suxibuzone twice daily at 12-hour intervals on Day 1, 1.5 grams twice daily on Days 2-4, then 1.5 grams once daily for Days 5-15.
- The control group received no meds.

Just before the medication phase, one horse randomly assigned to the Bute group had an ulcer score of 1; the rest scored 0. After 15 days of treatment, all treated/control horses had similar median scores, indicating that at these dosages, suxibuzone was no better for the stomach than Bute.

“Suxibuzone protection is more likely to be observed when these drugs are administered at higher dosages or to young or debilitated animals,” noted Andrews, citing a study that found fewer ulcers in horses given more than double doses of these meds.

“Both top-dress formulations were readily consumed and ... neither formulation resulted in excess gastric ulceration when administered per label recommendations,” he noted. “Furthermore, no protective effect on gastric mucosa was seen for suxibuzone compared with phenylbutazone.”

Hold the Persimmons, Please

A persimmon is a bright orange tropical fruit that's claimed to have many human health benefits, from helping prevent cancer to arresting the hiccups. However, persimmons have a dark side—they can form hard “concretions,” or fiber masses, in the gastrointestinal tracts of horses and humans that can require surgery to remove.

Such masses—bezoars—are even harder in texture and more difficult to resolve when made of persimmon bits compared to other materials. They've even earned their own special name: diospyrobezoars.

Heidi Banse, DVM, a resident at Oklahoma State University, presented a study on the outcomes of 13 cases referred to five different university hospitals from 2001-2008 for diospyrobezoar-related problems. She reported that all horses exhibited colic, weight loss, or diarrhea, and that 10 of them presented in fall or early winter.

Twelve of the 13 cases were treated and eight survived at least four months after treatment. Seven had stomach bezoars; the other was in the intestines. Banse noted that medical treatment of stomach bezoars can take several weeks, but it's usually successful. Diet restriction (pelleted feed) and large amounts of Coca-Cola (yes, really) are used to dissolve the bezoar.

However, she noted that surgery is

warranted in intestinal diospyrobezoar obstruction because of the risk for intestinal perforation. Two of the four horses in this series that had surgery survived.

Evaluating *Salmonella* Biosecurity

Vets take *Salmonella* very seriously because it can cause severe equine and human GI disease. Thus, most equine hospitals have biosecurity measures to avoid spreading *Salmonella* (or any other infectious organism) that enters the hospital.

“Most large animal hospitals have a ‘zero tolerance’ goal for nosocomial (hospital-acquired) salmonellosis,” noted Harold C. Schott, II, DVM, PhD, Dipl. ACVIM, of Michigan State University (MSU). He discussed the evolution of MSU's *Salmonella* biosecurity program over the last 10 years.

“Ongoing evaluation of the efficacy of biosecurity programs and regular re-evaluation of protocols used is critical in the effort to reduce *Salmonella* nosocomial infection rates.”

DR. HAROLD C. SCHOTT

“Although zero tolerance may be the goal, infectious organisms can be introduced to a hospital with any horse (healthy or sick), and spread between patients can occur rapidly,” he said. “Thus, the true goal of a biosecurity program is to rapidly identify when ‘bad bugs’ may enter ... and limit the risk of spread to other horses and/or personnel. Further, biosecurity programs often need to be tailored for both the infectious agent and specific hospital design.”

- Typical biosecurity program measures:
- Establishing traffic flow patterns (i.e., treat infectious horses last);
 - Detailing specific indications for patient isolation (i.e., known *Salmonella* infection or contact with a *Salmonella* case);
 - Establishing cohort housing of various risk levels (i.e., keeping GI cases together, away from the reproduction unit);
 - Screening patients for fecal shedding of *Salmonella*;

- Monitoring disinfection efficacy with environmental cultures; and
- Encouraging good staff hygiene.

Such practices vary across facilities based on facility design and other challenges, he noted. He detailed biosecurity practices at MSU and results.

“Control of nosocomial infections is important in any type of large animal hospital,” Schott said. “Protocols must be developed and placed into practice to identify when an increasing number of infections are occurring in order that a rapid and effective method of controlling outbreaks may be undertaken ... when surveillance for disease is implemented, the opportunity to detect outbreaks of both nosocomial disease and colonization is also increased.

“Unfortunately, improved biosecurity programs are not always completely effective in limiting nosocomial infection rates,” he added. “Thus, biosecurity remains an ongoing challenge that requires strict compliance to protocols coupled with effective communication to encourage all personnel to understand why such protocols are necessary. Furthermore, ongoing evaluation of the efficacy of biosecurity programs and regular re-evaluation of protocols used is critical in the effort to reduce *Salmonella* nosocomial infection rates in equine hospitals.”

DMSO Doesn't Help Gastric Aspects of Endotoxemia

Endotoxemia, the presence of microbe-derived toxins in the bloodstream, is “one of the most severe and ubiquitous disease processes in horses,” said Gal Kelmer, DVM, MS, Dipl. ACVS, ECVS, of The Hebrew University, in Jerusalem, Israel.

Endotoxemia delays gastric emptying, which can cause the stomach to retain acidic contents and cause or worsen gastric ulcers. At worst, it can lead to reflux material accumulation and gastric rupture.

Since many effects of endotoxemia are due to oxidative damage, Kelmer and colleagues at the University of Tennessee investigated the effects of the antioxidant dimethyl sulfoxide (DMSO) on delayed gastric emptying caused by experimentally induced endotoxemia. They found that it did not improve the condition.

“DMSO may be less effective in the management of endotoxemia in horses than was previously thought,” he concluded. 🐾