The dopamine antagonist domperidone is labeled as an investigational drug used to treat fescue toxicosis in horses. Fescue toxicosis, which is caused by a fungus that infects fescue grass pastures, results in severe reproductive problems, difficulty giving birth, and lack of milk production. Domperidone may regulate the motility of gastric and small intestinal smooth muscles, in horses and may, therefore, have some effect on esophageal motility in dogs and cats. The drug also has antiemetic activity from dopaminergic blockage in the chemoreceptor trigger zone. Domperidone has not yet been approved for use in the United States, and there is little clinical experience with the drug in regard to companion animals. As a prokinetic agent, domperidone appears to be more effective in small animals in improving clinical signs (e.g., anorexia, vomiting) associated with delayed gastric emptying.

Domperidone is rapidly absorbed following oral administration. Although the drug is almost completely absorbed from the GI tract, oral bioavailability in humans is only about 13% to 17% because of extensive first-pass and gut-wall metabolism. Domperidone is 91% to 93% bound to plasma proteins, and the plasma half-life is 7 to 9 hours after administration of a single oral dose in humans. Domperidone undergoes rapid and extensive hepatic metabolism by hydroxylation and N-dealkylation in humans. The drug also elevates serum prolactin levels in humans. Pharmacodynamic parameters are currently unavailable for animal species.

INDICATIONS
In humans, domperidone is indicated for delayed gastric emptying of functional origin with gastroesophageal reflux and/or dyspepsia, control of nausea and vomiting of central or local origin, and as an antiemetic in patients receiving cytostatic and radiation therapy. The drug also facilitates radiologic examination of the upper GI tract.

In animals, domperidone is currently approved as an investigational drug for the prevention and treatment of fescue toxicosis and related agalactia in periparturient mares. Domperidone is used extralabel in small animals to stimulate antral contractions and enhance gastric emptying. Data supporting the use of domperidone in small animals are contradictory because some trials have shown improvement in antral contractions in dogs but not in cats, and one trial showed no enhancement of gastric emptying in normal dogs. No doses of domperidone were cited in any of the small animal clinical trials.

CAUTIONS
Because domperidone is a gastric prokinetic agent, it must not be used...
in mares with suspected or confirmed GI blockage. The drug is not indicated for use in animals intended for food.3

**Adverse Effects**

In some cases of long-term domperidone treatment, leakage of milk and colostrum has occurred. If leakage should occur and foaling does not take place within 24 hours, half the recommended dose should be administered twice daily at approximately 12-hour intervals and continued until foaling. If leakage continues, the dose should be reduced to one third of the recommended dose (still administered twice daily at 12-hour intervals until foaling). In some cases, treatment may need to be reduced to very low levels or discontinued.9

In a trial1 using domperidone for the treatment of fescue toxicosis in horses, no central nervous system side effects were noted. This is most likely because domperidone does not cross the blood–brain barrier; therefore, it has less potential for causing adverse effects, especially on the central nervous system.14

**Acute Toxicity**

In humans, signs of overdose include drowsiness, disorientation, and extrapyramidal reactions. Anticholinergic drugs (e.g., atropine) and antihistamines with anticholinergic properties (e.g., chlorpheniramine, hydroxyzine, cypheptadine) may be helpful in controlling the extrapyramidal reactions. Although there is no specific antidote to domperidone, in the event of overdose gastric lavage and activated charcoal may be helpful. Symptomatic and supportive measures are recommended.4 No acute toxicity has been reported in animal investigations.

**DRUG INTERACTIONS**

The use of domperidone in mares may cause false-positive readings on milk calcium tests used to predict foaling.9 Because domperidone interferes with serum prolactin levels, it may also interfere with other hypoprolactinemic agents.4 Antacids and antisecretory agents may lower the oral bioavailability of domperidone.4 Oral bioavailability is decreased by prior administration of cimetidine or sodium carbonate.4 Because domperidone has gastric prokinetic effects, it could influence the absorption of concomitant orally administered medications, particularly sustained-release or enteric-coated formulations.4

**Dosage and Administration**

Domperidone oral gel should be administered after fescue toxicosis at a dosage of 5 ml/500 kg (1100 lb) mare body weight daily as an oral dose starting 10 days prior to the expected foaling date and continuing until foaling. The dose should be adjusted according to the mare’s body weight. Fescue toxicosis may occur in mares that are at or past their expected foaling date without signs of udder development or impending parturition. Treatment should be initiated immediately and continued until foaling. On farms with a history of severe fescue toxicosis problems and where mares will remain on toxic fescue until foaling, the drug may need to be initiated as early as 15 to 25 days prior to the expected foaling date and continued until foaling. Treatment may need to be continued up to 5 days after foaling in some mares that are not milking adequately at foaling.9

If used concurrently with domperidone, antacids or antisecretory agents should be given separately. Antacids or antisecretory agents should be administered after meals because reduced gastric acidity may impair the absorption of domperidone.4

**Preparations**

Equidone™ (domperidone 11%; Equi-Tox Pharmaceutical Research and Development, Pendleton, SC) oral gel has received investigational drug status from the FDA.9 This product is available as a 25-ml oral Dial-A-Dose® syringe (Plas-Pak Industries, Norwich, CT), which delivers five doses for an average 1100-lb mare (Box 1).2 Domperidone tablets can be imported from Janssen Pharmaceuticals (Cilag, United Kingdom) by obtaining a medically necessary personal veterinary imports clearance from the FDA.

Domperidone may be compounded, but it is probably unnecessary with a gel formulation available. Redmond and colleagues1 reported a

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### Box 1. Use of the Dial-A-Dose® Syringe

- Using the mare’s weight, calculate the appropriate dose (1 ml/220 lb; 5 ml/1100 lb).
- Turn the dial ring on the syringe until the edge of the ring nearest the tip lines up with the dose to be delivered.
- Make sure the mare’s mouth is free of food or other obstructions.
- Remove the cap, insert the nozzle of the syringe through the interdental space of the mare’s mouth, and deposit the paste on the back of the animal’s tongue by depressing the plunger.
- Observe the horse briefly following administration to ensure that the dose has been ingested.
- Recap the syringe. The remaining contents can be used as part of the next dose.
compounded formulation of domperidone in which a corn and dried molasses mix was used as the carrier for drug treatments. Domperidone was dissolved in 5 ml of cider vinegar and mixed into the grain to facilitate even distribution of the compound. An additional 15 ml of cider vinegar was then added to encourage complete consumption of the ration. The mix contained 20% molasses to increase palatability of the treatments.

STORAGE AND HANDLING

Domperidone should be kept in a cool, dry place. The drug should be kept out of reach of children and pets.

REFERENCES


