

Bovatec® Poisoning in Dogs, Horses & Small Animals

Introduction

Bovatec is a common additive in calf milk replacers, calf starter and cattle/sheep feeds.

Bovatec is a AVPMA registered product containing an ionophore compound, lasalocid, which is a common medication added to ruminant (cattle, sheep, goat) feeds. It is used to prevent and control coccidiosis (protozoal parasite infection) in calves and it acts as a rumen modifier in older animals for improved feed efficiency and liveweight gains.

However, lasalocid is not registered for use in dogs and horses because of their sensitivity to this compound and known toxicity. Therefore, feeds medicated with lasalocid should not be fed to these animals. Lasalocid poisoning typically occurs when dogs or horses accidentally consume ruminant feeds containing this medication.

Always seek immediate veterinary assistance whenever a suspected case of ionophore (lasalocid, monensin) poisoning occurs.

For help with any lasalocid poisoning cases, call Zoetis product support 1800 814 883.

Vet Report: Lasalocid Poisoning in Dogs

Authored by Dr Matthew Petersen, Veterinarian

Jul 30, 2020

Lasalocid is a carboxyl ionophore antibiotic that is used for the prevention of coccidiosis in chickens and turkeys, and in ruminants. Dogs become poisoned from eating contaminated carcasses, drinking calf milk replacer which contains lasalocid, and there has been a case report of dog food inadvertently contaminated with this drug. The LD50 (lethal dose in 50% of dogs) in dogs was estimated at 10 to 15 mg/kg, which makes dogs highly susceptible to lasalocid poisoning.

Affected dogs commonly present with neurological signs. Clinical signs begin within 12 hours post-ingestion, leading to paralysis. Weakness in all four limbs, salivation, high body temperature and difficulty breathing are the major symptoms in dogs, with some dogs showing loss of tongue control, increased sensitivity to environmental stimuli and uneven pupil sizes.

A blood test may detect some abnormalities but these are not diagnostic for ionophore toxicity. Serum biochemical abnormalities include high activities of creatine kinase, lactate dehydrogenase and aspartate aminotransferase.

A presumptive diagnosis is based on presenting clinical signs, blood test results, known exposure to feedstuffs containing it, or identification of the toxin in feed or carcasses.

Illness caused by other toxicities including botulism and tetanus may need to be ruled out.

There is not a specific treatment for lasalocid toxicosis. Treatment is supportive and may include activated charcoal given orally and intravenous fluids being the main therapy. Placement of gastric tube feeding in dogs unable to eat for long periods can be considered. In severe cases leading to respiratory paralysis, ventilation is required. Spontaneous ventilation has returned in 6-12 hours in some cases.

Vet Report: Managing Ionophore Toxicity in Horses

Authored Dr. Lainie Kringen-Scholtz, Veterinarian

Oct 31, 2018

Many large animal owners tend to have more than one species on their farm – cows and horses, pigs, sheep and dogs – and each of these species have different types of digestive tracts and nutritional needs.

An ionophore is a feed additive that is used for ruminants (cattle and sheep) to increase feed efficiency, decrease coccidia, and help them gain weight by altering fermentation patterns. They do this by changing which microorganisms exist in the rumen, selecting for the more efficient ones. When the rumen's microorganisms are more efficient, the animal's feed efficiency increases. Common ionophores include monensin (Rumensin) and lasalocid (Bovatec).

Horses are very sensitive to ionophores compared to other species. Instead of making horses gain weight like ionophores would do in cattle, they instead cause heart muscle death (myocardial necrosis). The Food and Drug Administration in the US requires feed mills to flush their systems before producing feed for other species, so ionophore exposure through manufactured feed is quite rare today. Most horse feed companies in Australia do not manufacture feed for ruminants; and if they do, then equine and ruminant feeds are made at separate facilities to avoid cross-contamination of undesirable ingredients. Horses most commonly become exposed to ionophores when they get out and consume feed for other animals.

Sometimes horses access medicated cattle feed but this dose is not concentrated and commonly does not affect them (although this is not recommended and is still dangerous). A dose of about 550 milligrams monensin or around 500g of feedlot concentrate or 250g medicated cattle mineral would kill about half of the average-sized

horses consuming it, according to Dr. Roxanne Knock who is a PhD ruminant nutritionist. The toxic levels for Bovatec containing feeds would be similar.

The clinical signs of ionophore toxicity in horses varies on the quantity, concentration, and type they ingested. Most commonly signs include weakness, lethargy, depression, colic, anorexia, sweating, ataxia, diarrhea and lying on its side and unable to get up. Sudden death may occur within 12-36 hours of ingestion.

Diagnosis is often made by finding the ionophore in the feed or stomach contents of the horse. If the owner knows that the feed was contaminated or medicated, it is still important to have an echocardiogram done to evaluate the heart. The degree of changes within the heart muscle will often give a prognosis that can vary from grave to good. Horses with few degenerative changes in the heart may return to full function. Horses with severe changes often do not survive.

Because the clinical signs vary so much for ionophore toxicity in horses, the treatments vary as well. If the horses had just consumed a large amount of ionophore-containing feed, their stomach will be pumped out, and activated charcoal and mineral oil will be pumped into their stomach. The veterinarian may choose to stand them in buckets of ice water in case of laminitis from grain overload. Vitamin E may be used to protect the heart muscle. IV fluids may be indicated as well.

Horses should be rested in a stall for up to eight weeks after exposure and monitored closely. If their heart was clinically affected, make sure that they are not being rode for risk of a cardiac event.

Be certain that you are ordering horse feed from a mill that does not handle ruminant feed. Latch all your gates and make sure that your ionophore-containing feed is in a container that a horse could not open.

Vet Report: Carboxylic Ionophore Toxicity in Small Animals

Authored by Dr Lynn R. Hovda, Veterinarian

Jun 22, 2017

All the carboxylic ionophores are safe when used according to label instructions for the specific species, although even within this group poisonings may occur with either acute or chronic overdose ingestions.

They are not labelled for use in any equine species and reports of acute toxicity and death in horses are well reported and documented.

They are also not labelled for use in any small animal species and poisonings are routinely reported when fed to or ingested by small animals. Most of the reports involve dogs and rabbits; clinical reports of toxicosis in cats are rare. This may be due to the fastidious and finicky eating habits of cats or because house and city cats do not routinely have access to these substances.

Small animals may become poisoned by carboxylic ionophores in many ways. Illness and death from pet food contaminated with a specific ionophore was the most likely source in several reported poisonings. In one case involving the sudden onset of clinical signs in a kennel, dog food was prepared by a small feed mill overseas that also manufactured monensin containing cattle and chicken feed.

Dogs, largely rural, may ingest food designated for cattle or poultry either by eating a modest amount of a complete animal feed or a smaller amount of a concentrate or premix or a medicated calf milk replacer. This generally occurs when dogs have direct access to feed in cattle troughs or feed bunks or stored bags of feed, concentrates, or premixes or calf feeders containing medicated milk.

Storage errors such as placing dog or rabbit food in a container previously holding an ionophore or chewing and swallowing an ionophore sustained release bolus have also been reported. Occasionally, dogs or rabbits are poisoned by an unsuspecting owner either intentionally or unintentionally feeding them an ionophore containing product.

Conclusion

All ionophore compounds are safe when used according to label instructions for specific species (e.g. cattle, sheep, poultry), although even within this group poisonings may occur with either acute or chronic overdose ingestions.

However, horses, dogs and most small animals are susceptible to ionophores so there is a responsibility to manage medicated feed products so they can do no harm.

Accidental consumption of ionophore containing feeds will lead to poisoning in susceptible species. The degree of toxicity will vary depending on the species involved and the amount ingested.

In the unfortunate event of such a positioning, contact your local veterinarian for immediate assistance.

For Additional Information Relating This Topic

Contact Dr. Matthew Petersen, Veterinary Operations Manager, Zoetis.

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Tips to Avoid Ionophore Poisoning in Susceptible Animals

Things you can do to prevent accidental consumption of ionophore medicated feed, include but not limited to:

- Never assume a feed suitable for one species is suitable for another.
- Purchase pre-mixed feed from a reliable source and always read the label.
- Avoid feeds decanted into smaller packs that do not provide full product label information.
- Check the label for appropriate warnings for various species, if in doubt check with a veterinarian or product manufacturer.
- Use feeds containing ionophores only for the species directed on the label.
- Use separate and well-marked storage containers and feeders for medicated and non-medicated feeds.
- Ensure susceptible species are not able to access medicated feeds
e.g. dogs wanting to drink medicated calf milk, horses accessing cattle feeds etc
- If you are adding ionophores to your own feed mix, seek professional advice and ensure your dosage calculations are correct.

ProviCo Products Containing Bovatec®

- **Feedrite Calf Starter Muesli**
- **FortiMILK GOLD, SILVER, SOLUPLEX Calf Milk Additives**
- **ProfeHERD Healthy Calf Macro Concentrate**
- **ProfeLAC GOLD Calf Milk Replacer**
- **Vitafarm Premium Calf Milk Replacer**

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