Welcome to the Spring edition of Toxic Times

Welcome to the latest edition of Toxic Times. Inside you will find some useful information on the effects in animals of anthelmintics and the painkiller carprofen. In addition, there is an article by Eurovet providing up-to-date information on supplies of Vitamin K. If you are visiting BSAVA, please remember to drop by the VPIS stand (Stand 507) to say hello and pick-up a 10% off discount voucher for CPD animal toxicology courses being run by the VPIS during 2012. Happy Easter!

Anthelmintics

Anthelmintics are endoparasiticides for tapeworms, roundworms and flatworms and can be used therapeutically in both cats and dogs. They include the drugs milbemycin, pyrantel, praziquantel, emodepside and febantel, which are often used in various combinations with each other due to their different modes of action.

Milbemycin increases the permeability of nematode membranes to chloride ions via glutamate-gated chloride ion channels, resulting in hyperpolarisation of the neuromuscular membrane, flaccid paralysis and death of the parasite. Praziquantel causes an influx of calcium across the parasite tegument, leaving the parasite more susceptible to proteolytic enzyme attack. Pyrantel interferes with parasitic nerve transmission resulting in neuromuscular paralysis, while febantel is converted into fenbendazole and acts by disrupting parasitic cells structure by binding to tubulin and preventing nutrient uptake. Emodepside also causes paralysis and death of parasites by stimulating presynaptic receptors of the secretin group.

In dogs and cats, when used alone or in combination, emodepside, praziquantel and pyrantel are considered to be of low toxicity and are well tolerated in large doses with only vomiting and diarrhoea the expected clinical signs. However there are reports in cats of ataxia and drowsiness after being given a combination of febantel, pyrantel and praziquantel. Overdose with febantel may also cause inappetence and hypersalivation. Milbemycin can cause anorexia, dilated pupils, depression, tremor and ataxia in both dogs and cats, some breeds of dog will be more susceptible and may develop signs at lower doses. In cats twitching, shaking and hyperthermia have also been reported. It should be noted that in dogs with a high parasite load the use of milbemycin can cause a hypersensitivity reaction manifesting as vomiting, pale mucous membranes, laboured breathing and tremors. Generally these drugs cause mild self-limiting effects and gastric emptying or treatment is often not required.

By Karen Sturgeon
Interesting cases:
The dangers of euthanised carcasses to inquisitive dogs

A 30 kg border collie presented after digging up and eating a sheep that had been euthanised 6 weeks previously. She developed bradycardia, bloat, respiratory depression and coma. She was so sedated that no anaesthetic was required for the laparotomy to remove rotted and very smelly sheep guts and flesh from the gastrointestinal tract. The dog woke up and went to sleep again several times before making a full recovery (99016972).

In a similar case a Labrador and a German Shepherd dog (both 30 kg) dug up a piglet which had been euthanised with 40 ml of Pentojet (pentobarbital 20%, 200 mg/ml), burnt and buried 4 months previously. By 18 hours they had both developed hyperthermia and coma but recovered over 24 to 36 hours (10004866).

We also have a case on our database of a dog that ingested a euthanised Koi carp that was buried for 6 months. The dog developed shaking, hypothermia and was unresponsive within 1 hour of ingestion. Unfortunately the outcome in this case is unknown as the follow up questionnaire was not returned (151599).

These cases demonstrate that pentobarbital continues to be a hazard in euthanised carcasses many weeks and even months after administration. Great care should be taken to dispose of carcasses appropriately and well away from areas frequented by inquisitive dogs.

By Nicola Bates

BSAVA / VPIS Guide to common canine and feline poisonings

Following the successful launch of the VPIS / BSAVA online Poisons Triage tool at the BSAVA Congress in 2011, the partnership is now publishing the content of the 150 electronic entries in a handy booklet format. This is one of the BSAVA member benefits for 2012, and therefore members will be able to claim a free copy at the BSAVA congress. Non BSAVA members will be able to purchase a copy from the BSAVA.

The booklet provides information relating to the poisoning of small animals by commonly encountered medicines, plants, chemical substances and food items. All sections have been written by VPIS staff and reviewed by two veterinary emergency and critical care consultants.

There are sections on toxicity, clinical effects, appropriate first aid and subsequent management and prognosis. This is to enable veterinary surgeons and their staff to give appropriate guidance to clients that suspect their animals may have been poisoned and also instances where referral to VPIS for more case-specific advice would be advisable.

A simple visual ‘Traffic Light’ system indicates the level of concern and urgency.

All BSAVA members have access to the online BSAVA/VPIS Poisons Triage Tool via www.bsava.com

By Alex Campbell

Recent publications


Key Points

• Adder bites are frequent during the summer months.
• Adder envenomation causes significant morbidity but low mortality in dogs.
• Adder antivenom is the most specific treatment and is expected to reduce morbidity with rapid improvement of swelling and reduce hospitalisation time.
• Other treatment is supportive with opioid analgesia, intravenous fluids and antihistamines.
• Steroids have no place in the treatment of adder envenomation and can reduce the effectiveness of antivenom.

By Nicola Bates
Carprofen

Carprofen is a propionic-acid based non-steroidal anti-inflammatory drug (NSAID) used for management of inflammation and pain in most animals.

NSAIDs reduce the production of prostaglandins via inhibition of cyclo-oxygenase enzymes involved in their synthesis. Prostaglandins are concerned with control of gastric acid production, stimulation of secretion of mucous and bicarbonate by the gastric epithelium and maintenance of mucosal blood flow. In the kidneys, prostaglandins are concerned with renal homeostasis. The cyclo-oxygenase isoform COX-1 is concerned with the synthesis of regulatory prostaglandins as described above. COX-2 is inducible and is principally concerned with the synthesis of prostaglandins involved in the inflammatory response. Carprofen appears to be relatively COX-2 specific in dogs (but to a lesser extent in cats).

VPIS experience suggests that carprofen is relatively well tolerated in dogs and significant effects are uncommon. Data concerning cats are very limited and we would recommend contacting the VPIS in all cases.

In symptomatic animals, observed effects may include vomiting, diarrhoea, abdominal tenderness, inappetence, anorexia and polydipsia. Mucous membranes may be pale or congested. Melaena and polyuria is occasionally reported. Very rarely behavioural changes have been noted. Gastric erosion, ulceration and, theoretically, perforation may occur. However, these effects are not commonly observed with carprofen ingestion in dogs.

Renal failure would only be anticipated if huge doses have been ingested by a dog. Hypotensive or dehydrated animals are at greater risk from renal effects, as are those with pre-existing renal impairment. Animals on chronic NSAID therapy may also be at enhanced risk.

Treatment involves decontamination (emesis, activated charcoal) and gastroprotective therapy. The H2 receptor antagonists cimetidine, ranitidine and famotidine work to maintain gastric pH in order to reduce the risk of ulcer formation. Proton pump inhibitors such as omeprazole are also effective and provide long duration inhibition of gastric acid secretion. Sucralfate is an ulcer healing / ulcer coating agent that is useful if gastric ulceration is suspected or confirmed. Misoprostol is a synthetic prostaglandin analogue that may effectively supplement endogenous prostaglandin stores. Misoprostol is abortifacient and should not be used in pregnant animals. Ensure all animals are adequately hydrated and monitor renal function where required.

By Leonard Hawkins

Anticoagulant poisoning: sourcing treatment

For some time, the treatment of anticoagulant poisoning has been hampered by the difficulty in sourcing suitable treatments. This year saw the launch of a veterinary licensed vitamin K1 injectable preparation from Eurovet Animal Health, which changed the situation considerably giving the profession assured continuity of supply.

This veterinary preparation has a significant advantage over human products in that it can be given intravenously, without undue risk of anaphylaxis, ensuring 100 per cent bioavailability almost immediately, to help restore coagulation function in an emergency situation.

Treatment with vitamin K post poisoning should last for at least 21 days, so the availability of tablets has, until now, continued to be a current issue. In the last few months, Eurovet has also been able to bring vitamin K1 tablets into the UK. At present, the tablets are being brought in on a special import licence and practices ordering them from wholesalers must also hold a special import certificate for European Medicinal Products (SIC). The VMD Veterinary Guidance Notes relating to Import Certification Schemes provide information on the application process, which is available from VMD free of charge. Once the practice holds a SIC they can order direct from a veterinary wholesaler as long as they also hold the appropriate licences.

To download a protocol for administration of Eurovet Animal Health vitamin K1 preparations use this direct link http://www.eurovet-ah.co.uk/data/acms/nieuwscat/Nieuws/16_avkprotocol.pdf (or view at www.eurovet-ah.co.uk/news)

For further information contact Eurovet Animal Health, Compass House, Chivers Way, Histon, Cambridge, CB24 9AD Tel:01223 257933 Email: office@eurovet-ah.co.uk www.eurovet-ah.co.uk

Vitamin K1 Injectable contains phytomenadione (vitamin K1) 10 mg per 1 ml. Legal category POM-V.

Vitamin K1 Tablets contain phytomenadione (vitamin K1) 50 mg per tablet. Legal category POM-V.

Use Animal Medicines Responsibly http://www.noah.co.uk/responsible/
Meet the Team

Name: Kate Farr
Job Title: Information Scientist

How long have you worked for VPIS?
Just 2 months. I have always worked within the veterinary sector. Other posts have included Head Nurse of a busy mixed practice, a Scientific Officer for the VLA and lecturing in Animal Science, which I have been doing for the last 11 years.

What do you most like about your job?
It is interesting seeing the service from the other side. I am enjoying the challenge of providing information quickly to the caller; the more unusual the case the better. I am also relishing never having to mark assignments, exams and dissertations again!

What do you most dislike about the job?
The journey to work. Commuter etiquette is a complete mystery and I have already learnt that anything can happen on the way to work in London.

What is your most memorable VPIS telephone enquiry?
My experience is limited but it was fantastic to receive feedback on a case I handled relating to a pair of dogs convulsing with metaldehyde toxicity. They were discharged 24 hours later as they had become too naughty for hospitalisation.

What is the silliest thing you have said down the phone?
Umm - I can’t think of anything printable….sorry!

Do you / did you have a pet / pets?
Far too many to count. Current favourites are chickens and tortoises. My partner is hoping that a desk job, with no direct contact with animals, will stop me bringing “projects” home. However, he does not know about my plans to hatch more chicks this spring!

What are your hobbies / other interests?
As a working mum with a 5 year old, I have little time for hobbies although I love my garden and grow as much of my food as possible.

Favourite food?
Fresh peas, straight from the pod – yum.

Favourite music?
I have quite an eclectic taste in music that spans from anything by Prince to the “The Pearl Fisher” by Bizet.

Where is the most unusual place you have ever visited?
Exploring a lava tube in America was memorable, especially when my torch failed deep inside.

Favourite quote:
“There is something about the outside of a horse that is good for the inside of man” - Winston Churchill. So true.

Chocolate – an Easter reminder

Chocolate poisoning in dogs is particularly common over the Easter period. Toxicity is due to the methylxanthine theobromine, which is present at various concentrations depending on the type of chocolate.

Symptomatic animals may develop significant vomiting and diarrhoea, and since theobromine is a diuretic, dehydration is a principal concern.

Larger ingestions may result in both CNS and myocardial symptoms. Tremor/agitation is relatively common whilst convulsions are occasionally reported. The principal concern with theobromine toxicity however is cardiac arrhythmias, in particular tachyarrhythmias and premature ventricular beats. Treatment is largely supportive and involves decontamination (emetic as appropriate, repeat dose activated charcoal), rehydration and appropriate management of convulsions and arrhythmias.

By Leonard Hawkins and Karen Sturgeon

Animal toxicology CPD courses from the VPIS
- 12th June - Glasgow • 4th July - Liverpool • 14th September - London • 11th October - Bristol
£215 plus VAT per person. Further details on www.vpisuk.co.uk