Has the pet been poisoned?

DOES your practice have a standard operating procedure in place for handling cases suspected of ingesting a poison? If not, a recent webinar organised by The Webinar Vet is a very good starting point from which to create a set of guidelines.

Nick Carmichael, an RCVS Specialist in Veterinary Clinical Pathology and director of Carmichael Torrance Diagnostic Services (CTDS) led an hour-long webinar discussing the importance of those first steps when handling poisoning cases and the potential benefits reaped from veterinary toxicology testing.

Nick began by discussing the extent of the problem across the UK with the Veterinary Poisons Information Service (VPIS) estimating around 40,000 poisoning cases per year, with around 3% of these being fatal.

The VPIS also reports a list of poisons most frequently enquired about by vets in practice, the most common being theobromine (chocolate), followed by NSAIDs such as ibuprofen, then rodenticides such as difenacoum. These include European viper venom antiserum, methocarbamol for the treatment of a patient at the earliest possible point, Nick reinforced getting samples from the lab on the likelihood of certain toxins being detected and from which samples.

Nick also reminded us that this type of testing may also help to identify any poisons which may be involved in cases of sudden death. Although a full post mortem is ideal, some owners may feel more comfortable with performing less invasive tests such as obtaining urine samples by cystocentesis, blood by cardiocentesis and gastric contents via stomach tube.

Once again, all these samples can be frozen and kept for a reasonable time, especially if the owner needs time to consider all the options.

Reinforcement

Nick reinforced getting samples from a patient at the earliest possible point, which could make the difference between a successful and unsuccessful outcome.

He cited a case of a three-year-old lurcher that presented with seizures and hyperventilation after vomiting blue pellets consistent with molluscicides. These pellets were assumed to be metaldehyde and the dog was treated accordingly. Unfortunately, this dog died, and after GC-MS was performed on its stomach contents it transpired that these blue pellets were actually another molluscicide known as Methiocarb, a carbamate and which requires a different therapeutic approach.

There is a possibility that armed with this information, the appropriate treatment with atropine could have been administered and this dog could have stood a better chance of survival.

This was yet another interesting and informative webinar organised by The Webinar Vet and we are lucky to have access to such great resources including the VPIS, ToxBox and the expertise provided to us by external laboratories. By using these services we surely stand the best chance of ensuring these cases make a full and speedy recovery.

Detailed information such as the full name of the product, the manufacturer, the strength and composition of the active ingredient as well as the excipients are all helpful and could aid the VPIS to give guidance. It is also essential we tell our staff to ensure the clients bring with them any packaging which the poison was in, or any other relevant material (for example, part of an unknown plant or fungus).

The ‘must-haves’

Nick believes there are three main resources we should all have access to when dealing with poison cases in practice, the first being the VPIS. Subscribing to the VPIS is an absolute necessity as it provides an information resource that is vital in ensuring these cases get appropriate care.

The VPIS also receives excellent feedback from cases which have been treated and can consequently guide vets through treatment regimes which have proven to be helpful. Other toxicology resources include books such as the BSAVA Manual for Common Canine and Feline Poisons and Blackwell’s Small Animal Toxicology.

The second is the 24-hour ToxBox service where the VPIS has teamed up with VetsNow to provide veterinary practices with round-the-clock access to the drugs necessary for the appropriate treatment of poisons. These include European viper venom antiserum, methocarbamol for the treatment of metaldehyde toxicity, and acetylcysteine for paracetamol toxicity.

If specific drugs are necessary to treat a specific poison, and these drugs are not available at the practice, the VPIS will advise how to access the ToxBox at a local VetsNow clinic.

The third resource cited by Nick is to ensure that a practice has access to appropriate toxicology testing. He advised there may be cases where the underlying toxin is not known. Determining the toxin can be very useful as it helps to provide a prognosis for the affected animal and optimises its therapeutic management. Toxicology testing can also help to identify the underlying reasons for cases of sudden death.

Unfortunately, trying to identify the causal agent can be like looking for a needle in a haystack and one of the main problems with trying to search out these toxins is the variation in pharmacokinetics for each individual substance.

The speed with which certain toxins are cleared from the blood and urine needs to be considered. Drugs such as rodenticides can be cleared prior to any clinical signs developing but can often be detected in the liver.

Some substances may only be found in urine, such as “drugs of abuse”. Other drugs may have caused organ damage prior to clinical signs developing, such as ethylene glycol.

For these reasons it is always important to pick up the phone and seek the advice of an expert to find out which are the most appropriate samples to take for toxicology testing and whether it is possible to test for a toxin which you may be particularly concerned about.

There are several test methods to pick up toxins which include colorimetric tests which detect poisons such as paraquat, and ELISA tests which detect drugs such as ethylene glycol. Although ELISA tests are simple to use and give rapid results, they have questionable sensitivity and specificity and can be difficult to read.

Extracting toxins

According to Nick, gas chromatography-mass spectrometry (GC-MS) is now the mainstay for detecting specific drugs and toxins, and in the words of Nick is a good “haystack sifter”.

GC-MS works by extracting toxins dissolved in solvent which are vapourised and separated by gas chromatography and then identified by mass spectrometry. This technique is highly specific and can detect a wide range of compounds.

Panels are offered by CTDS according to the presenting clinical signs (this is available in table form from http://edltda.co.uk/). It also indicates the huge number of compounds which can be detected by this method.

A number of sample types can be used including blood, urine and stomach contents (faeces are not appropriate for GC-MS). Nick strongly advises taking multiple sample types as early as possible as we know there are certain toxins which will have been cleared from the body within a few hours of ingesting the poison. These samples should be labelled, dated and stored (freezing these samples is fine).

A list of differentials should be considered for each case and as stated previously it is always wise to seek advice from the lab on the likelihood of certain toxins being detected and from which samples.

Nick also reminded us that this type of testing may also help to identify any poisons which may be involved in cases of sudden death. Although a full post mortem is ideal, some owners may feel more comfortable with performing less invasive tests such as obtaining urine samples by cystocentesis, blood by cardiocentesis and gastric contents via stomach tube.

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The VPIS provides a poisons check list and it is important they are fully familiar with how to access the drugs necessary for the treatment of metaldehyde, permethrin, ethylene glycol and Blackwell’s Small Animal Toxicology.

Handling the poison case

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