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Introduction

Toxicity occurs when an animal consumes a chemical. This may be incorporated in something it eats, for example various plants contain poisonous substances. Some poisons can be a substance which, at the correct level, is an essential nutrient but at a higher level can be toxic. A good example is salt. Some drugs given at the correct dosage are highly efficacious but at higher levels can be very toxic. Good examples of this are furazolidone and the monovalent ionophores. Some toxicities are caused by substances that occur naturally, such as mycotoxins and plant alkaloids, whereas others occur as the result of accidentally exposing the animal to the substance, for example calves licking lead paint of an old door used as a pen partition or animals grazing grass under which old lead batteries were buried decades ago. Toxicities normally arise through the eating or drinking of contaminated feed or water, but some can enter the body by other routes such as inhalation of a poisonous gas like carbon monoxide or by being absorbed across the skin, for example certain organophosphorus compounds.

Definitions

A toxicity is the degree to which a substance (a toxin or poison) can harm an animal. Acute toxicity involves harmful effects in an organism through a single or short-term exposure. Subchronic toxicity is the ability of a toxic substance to cause effects for a long time but less than the lifetime of the exposed animal. Chronic toxicity is the ability of a substance or mixture of substances to cause harmful effects over an extended period, usually upon repeated or continuous exposure, sometimes lasting for the entire life of the exposed animal.

Diagnosis

Diagnosis requires the confirmation of appropriate clinical signs and post-mortem findings coupled with identification of the poison. With this last point the demonstration of the poison in the animal's tissues or digestive contents is preferable. Ideally the source of the poison should be identified.

Treatment

To some extent, treatment depends on the poison involved and can be quite specific, for example the use of vitamin K in the water to treat cases of Warfarin poisoning. In all cases there are some very basic things to be done, of which the most obvious is to remove the source of the problem by changing the feed or where the animals are housed.

A word of caution: Do not think that the appearance of a problem that moves from house to house, or even farm to farm, must be an infectious disease – it could be a foodborne toxicity and the apparent movement of the problem purely reflects the date the contaminated feed was introduced.

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