

Exposure to veterinary medicines: a particular risk for raptors and avian scavengers



Because of their feeding behaviour, raptors and avian scavengers may be accidentally exposed to veterinary medicines when they eat the carcasses of ruminants or horses left in the wild. Anti-inflammatories and barbiturates pose a particular risk to these animals and are subject to specific precautions for use.

Marketing authorisation for a veterinary medicinal product is based on an analysis of whether its benefits outweigh the risks. The assessment considers the safety of the medicinal product for the treated animal, the user, the consumer of any foodstuffs obtained from this animal, and the environment.

With some medicines, a particular risk to wildlife may be identified. In these cases, specific measures are taken, with precautions for use included in the package leaflet in order to limit the exposure of wildlife to the product or its residues. These precautions for use are supplemented as and when data are collected through the veterinary pharmacovigilance scheme.

Birds of prey and scavengers may be particularly exposed to veterinary medicines when the carcasses of treated domestic animals are found in areas where avian scavengers feed or when these carcasses are left in fields because rendering is not possible. This may be the case for certain types of livestock farming practised on vast areas of pasture, or in mountain areas where plots of land are difficult to reach.

In recent years, several alerts have led the European veterinary medicine authorities to take targeted measures to limit the risk of secondary poisoning in wild birds.

DICLOFENAC AND FLUNIXIN: ANTI-INFLAMMATORIES THAT ARE PARTICULARLY TOXIC TO BIRDS

Between 1990 and 2006, an episode of mass mortality in vulture populations led to the virtual disappearance of these birds from several regions of the Indian sub-continent (India, Pakistan and Nepal). This mortality was due to the birds consuming carcasses of animals treated with veterinary medicines containing diclofenac, an anti-inflammatory that is highly toxic to raptors [1]. For this reason, since 2006, the use of this compound in veterinary medicine has been prohibited in these countries.

In Europe, because of major differences in the conditions of use of medicines and the monitoring of do-

mestic animals, diclofenac has continued to be used in certain countries such as Italy, Spain and Estonia, with new precautions for use relating to the potential risks to wildlife being added to the summaries of product characteristics (SPCs) and package leaflets for the medicines concerned. No veterinary medicines containing diclofenac are authorised in France.

In 2014, several vultures in a zoo in Italy died after ingesting meat contaminated with flunixin-meglumine, a non-steroidal anti-inflammatory found in several veterinary medicines authorised in France and Europe. These deaths were recorded in Eudravigilance Veterinary, the European veterinary pharmacovigilance database. Since then, several publications in the international literature have reported cases of wild vultures being poisoned by this active ingredient under the same conditions [2].

This led the European Medicines Agency (EMA) to conduct a new assessment in 2022 of the risk to wildlife from the use of veterinary medicinal products containing flunixin-meglumine. It concluded that it was necessary to add the same statement to the SPCs of all the medicinal products concerned as was previously added for products containing diclofenac: *"Flunixin is toxic to avian scavengers. Do not administer to animals susceptible to enter wild fauna food chain. In case of death or sacrifice of treated animals, ensure that they are not made available to wild fauna"*.

The French Agency for Veterinary Medicinal Products (ANMV), which is part of ANSES, has also highlighted the need to consider the potential impact on wildlife before prescribing a medicine containing flunixin-meglumine for an animal [3]. If the treated animal is at high risk of mortality and its remains need to be left in situ, for example in the mountains, the use of flunixin should be avoided. This recommendation has been extended to carprofen and ketoprofen, as some publications also mention the possible toxicity of these active ingredients to vultures. For this reason, the use of anti-inflammatories that are less toxic to wild birds – such as meloxicam – should be preferred [4].

PERSISTENCE OF PENTOBARBITAL IN THE CARCASSES OF DOMESTIC ANIMALS

There have also been reported cases of wild birds poisoned due to the probable consumption of carcasses of animals euthanised with pentobarbital, a barbiturate contained in several veterinary medicines authorised for the euthanasia of domestic animals. This compound can now be administered in small but effective doses, making it easier to use on large animals (cattle, horses) whose carcasses are likely to be left in the wild.

Pentobarbital is also a very stable compound and can persist for several months in the tissues of euthanised animals [5].

European pharmacovigilance reports have identified 10 cases of secondary poisoning with pentobarbital in wild birds: one in France, one in Spain and eight in Germany, affecting a total of 23 animals of different species: griffon vultures, red kites, Eurasian goshawks, white storks, marsh harriers, common buzzards and bearded vultures. In most cases, the birds had been found dead and exposure to pentobarbital was demonstrated by toxicological analysis after necropsy. The source of exposure remained undetermined in most cases, except for the collective poisoning of eight griffon vultures that had consumed the carcass of a horse euthanised with pentobarbital. Neurological problems such as excitation, lethargy, drowsiness, muscle tremors and digestive disorders were observed in the exposed vultures. In another case involving a bearded vulture found dead, a necropsy of the animal and toxicological analyses indicated suspected death due to accidental contact with power lines, possibly precipitated by the sedative effect of sub-lethal pentobarbital poisoning, thus highlighting the fact that even non-lethal doses can have serious consequences for these animals [6].

A Spanish study recently showed an increase in the prevalence of barbiturate poisoning in scavenging birds, rising from 0.5% to 3.4% of all poisoning cases in these birds between 2012 and 2020 [5]. Meanwhile, data from the US suggest that pentobarbital was involved in 2.6% and 4.3% of poisoning cases in golden eagles and bald eagles, respectively, between 1975 and 2013 [7].

Wild birds are not the only victims. Several cases of secondary poisoning have been reported in farm dogs that ingested pieces of carcass or blood from euthanised animals, and then experienced neurological symptoms (drowsiness, ataxia) in some cases leading to coma and death.

This risk of secondary poisoning is mentioned in the SPCs for veterinary medicines containing pentobarbital authorised for use in livestock.

The SPCs also reiterate that carcasses should not be fed to other animals and should be disposed of in accordance with national legislation. Nevertheless, new pharmacovigilance data recently led the ANMV to issue a specific warning to practising veterinarians and animal breeders and owners about the risks of secondary poisoning when the carcasses of animals euthanised with pentobarbital are not rapidly removed¹.



Jacques Bietrix and Sylviane Laurentie
(French Agency for Veterinary Medicinal Products,
within ANSES)

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To access the SPCs of the medicinal products mentioned in this article: <https://www.ircp.anmv.anses.fr>

To report an adverse effect in an animal following the use of a veterinary drug:

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¹ <https://www.anses.fr/fr/content/euthanasiques-a-base-de-pentobarbital-attention-au-risque-intoxication-secondaire>