Barbiturate Poisoning in Avian Scavengers and Other Predators in Spain

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Pharmaceuticals are considered as emerging contaminants for wildlife, and one of these concerning chemical groups are euthanasia agents used in veterinary medicine. Here we present the occurrence of barbiturate intoxication in a longterm (2004-2020) monitoring study of wildlife and domestic animal poisonings in Spain (n=3210). Barbiturate intoxications in animals represented 3.4% (45/1334) of the total confirmed poisoned animals. This places barbiturates in fifth place in the scale of frequently detected contaminants in poisoning events. Prevalence by regions was estimated in up to 34.5% in Navarra. Barbiturates were detected in 0.2% (1/448) of baits containing detectable poisons. The most frequently detected barbiturate was pentobarbital (42/45, 93.3%), but we also detected phenobarbital, barbital, and thiopental (2.2%, each). Avian scavengers were the most frequently affected by barbiturate intoxications (n=36), especially griffon vultures (*Gyps fulvus*) (n=28). Median pentobarbital concentrations detected in intoxicated griffon vultures was 27.3 µg/g in the gastric content and 38.1 µg/g in the liver. At least two poisoning events affecting griffon vultures were related to the consumption of carcasses from euthanized livestock. One of these events affected 8 griffon vultures that were found dead next to a foal carcass that contained pentobarbital with a median concentration of 80.9 mg/kg. However, we also found phenobarbital in a prepared bait linked to the intoxication of one common buzzard (*Buteo buteo*). Moreover, although circumstances of the death were unclear in 7 mammals, deliberate poisoning was the most possible diagnosis (15.6%). This study concludes in the need of a stronger regulation on barbiturate use to avoid secondary poisonings due to the unproper disposal of euthanized livestock and to eradicate primary poisonings due to their deliberate misuse in baits to kill predators.