



Marieke A. Dijkman, Anne A Kan, Irma de Vries
PhD

Dutch Poisons Information Center, University Medical Center Utrecht
The Netherlands

m.dijkman-2@umcutrecht.nl

HUMAN AS WELL AS VETERINARY APPROVED NSAID'S ARE SOURCES OF COMMON INTOXICATIONS IN DOGS

Introduction

The Dutch Poisons Information Center (DPIC) can be contacted 24/7 for queries about acute intoxications, both in humans and animals. In 2015, the DPIC received almost 5.400 veterinary information requests. Annually, around 22% of all veterinary consultations are related to suspected intoxications by human medication and 5% by veterinary approved medication⁽¹⁾. Non-Steroidal Anti-Inflammatory Drugs (NSAID's) are always present in the top 10 of most commonly reported drugs. In 2015 ibuprofen even ranked on top of the list of human medication ingested by dogs and cats. In the category veterinary approved medications, praziquantel and carprofen rank high. The literature concerning ibuprofen intoxications thus far indicates that doses >70 mg/kg can cause gastrointestinal disturbances while doses >175-200 mg/kg may lead to renal damage (2). The DPIC however, has occasionally encountered renal dysfunction including acute renal failure at lower doses than 175 mg/kg. To investigate this dose-effect relation, we conducted a prospective follow up study concerning all veterinary consultations regarding ibuprofen exposures in dogs.

In this lecture an overview is given of the most frequently encountered NSAID's exposures reported to the DPIC (human as well as veterinary approved medicines). Additionally, the results of the prospective follow up study are presented (3).

Methods

All information requests made to the DPIC are registered in a database. This database was analysed retrospectively from January 1st 2012 until December 31st 2016 concerning all veterinary consultations with drugs classified as NSAID's in the database. Human as well as veterinary approved NSAID's were recognised. The animal species and exposure circumstances were recorded. Secondly from January 2012 till December 2013, a follow-up questionnaire was sent by (e)mail to all veterinarians who consulted the DPIC concerning a single, acute ibuprofen overdose in a dog in order to assess renal function.

Results

A total of 1023 consultations concerning 1053 animals were recorded. The majority were dogs (84.5%) and cats (14.2%). The percentage of (suspected) intoxications by NSAID's almost doubled in 5 years, from 154 dogs and cats in 2012 to 293 in 2016. A total of 19 different NSAID's were recognised; 2 both human and veterinary approved, 9 human and 7 veterinary approved, and 1 NSAID not approved in the Netherlands. The Top 5 most common NSAID's reported in dogs were 1) ibuprofen (n=423), 2) carprofen (n=168), 3) diclofenac (n=143), 4) naproxen (n=65) and 5) meloxicam (n=46). From January 2012 till December 2013, 104 acute, single ibuprofen exposures in dogs were reported, and 98 questionnaires were sent. Six cases were lost to follow-up because of missing contact data. 44 questionnaires (45%) were returned and 42 (43%) met all inclusion criteria. The ibuprofen-dose ranged from 11-1035 mg/kg body weight (median: 89 mg/kg). Emesis was induced and/or (multi dose) activated charcoal was administered in 18 cases (43%). 11 dogs developed symptoms that could be related to nephrotoxicity. In 9 out of 11 cases renal function was tested and in 7 cases elevated creatinine and urea values were found. In 8 out of these 11 cases less than 175 mg/kg body weight ibuprofen was ingested. In one dog the ingested dose mentioned (14 mg/kg) was most likely an underestimation and probably more ibuprofen was ingested. 7 dogs developed elevated creatinine and urea levels at a dose between 25 mg/kg (12,5 mg/kg twice with a 12 hour interval) and 125 mg/kg. The mean age of these dogs was 2,7 years (range: 7 months - 10 years). There were no German Shepherds species involved a breed considered to be more sensitive. One dog was a crossbreed Shepherds species and this 10 year old dog (ibuprofen dose: 109 mg/kg body weight) was euthanized because of its persistent renal dysfunction. All other dogs recovered within days to weeks.

Conclusion

Animals, especially dogs, are commonly exposed to human as well as veterinary approved NSAID's. Human approved NSAID's are 'over the counter' available medications and present in many households. Ibuprofen is most often reported and veterinarians must be aware that – in non-sensitive dog species - (mild) renal damage can be observed at ibuprofen doses less than 175 mg/kg.

COMPANION ANIMAL

TOXICOLOGY & EMERGENCY TREATMENT

References

1. Mulder-Spijkerboer HN, Kan AA, Van Velzen AG, Van Riel AJHP, De Vries I. Acute intoxications in humans and animals. Annual report 2015, Dutch Poisons Information Center. [https://www.umcutrecht.nl/Subsites/Nationaal-Vergiftigingen-Informatie-Centrum-\(NVIC\)/Nationaal-Vergiftigingen-Informatie-Centrum-\(NVIC\)](https://www.umcutrecht.nl/Subsites/Nationaal-Vergiftigingen-Informatie-Centrum-(NVIC)/Nationaal-Vergiftigingen-Informatie-Centrum-(NVIC)) (accessed feb, 14, 2016).
2. Villar D, Buck W. Ibuprofen, Aspirin and Acetaminophen Toxicosis and treatment in Dogs and Cats. *Vet. Human Toxicol.* 1998;40(3):156-162.
3. Dijkman MA, Kan AA, Meulenbelt J, De Vries I. Be aware of renal toxicity in dogs following a small ibuprofen overdose. (Abstract) *Clin Tox* 2015;53(suppl. 1):270-1