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Successful management of acetaminophen toxicity in a cat

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Abstract

Acetaminophen, a widely utilized analgesic and antipyretic in humans, poses a significant toxicological threat to felines, despite its efficacy in humans. In most mammals, acetaminophen undergoes hepatic biotransformation into non-toxic compounds via glucuronidation and sulfation, followed by renal elimination. However, cats exhibit exceptional sensitivity to acetaminophen's toxic effects due to their unique hepatic metabolism, characterized by a diminished capacity for glucuronide conjugation. A 2-month-old female cat was presented with symptoms of anorexia and pyrexia, and the owner reported administering 125 mg of acetaminophen suspension earlier that morning. Within 2 hours of ingestion, the cat developed facial swelling, prompting a diagnosis of acetaminophen toxicity based on the history and clinical presentation. The cat was subsequently treated with N-acetylcysteine and supportive care, leading to a successful and uneventful recovery. The case will be discussed in detail.

Keywords: Acetaminophen, facial swelling, N-acetyl cysteine

Introduction

Case History and Treatment

A two-month old female domestic shorthaired cat was presented with signs of anorexia and dullness (Fig.1a) The owner reported that the cat was anorectic and dull for the past 2 days and had administered 125 mg paracetamol to the cat for pyrexia. Within 2 hours of administration of paracetamol, the animal started showing facial edema (Figure 1b). On clinical examination, the animal was dehydrated, conjunctival mucous membranes were pink and moist, lymph Nodes were in normal size, rectal temperature was 101.8°F, SPO₂ was 97%, Respiratory rate was 20 breaths per minute and heart rate was 140 beats per minute. Whole blood sample was collected for complete blood count which revealed mild leucocytosis (White Blood Cell count-17900/cmm) with neutrophilia (84%). Serum sample was subjected to liver function tests and the parameters were within the normal range. Ultrasonography of the abdomen revealed normal study. From the history, clinical signs and diagnostic investigations, it was clear that the cat was suffering from acetaminophen (paracetamol) toxicity (Allen, 2003) [1].

On Day 1, the cat was treated with Injection DNS (Dextrose Normal Saline) at a dose of 10 ml/kg body weight intravenously, Injection N-acetyl cysteine at a dose of 140 mg/kg body weight intravenously, Injection Amoxicillin-Cloxacillin at a dose of 12.5 mg/kg body weight intravenously, Injection Pantoprazole at a dose of 1 mg/kg body weight intravenously and Injection Ascorbic acid-0.25 ml intravenously. On Day 2, the facial swelling has reduced (Figure 2) and the cat's hydration status has improved. The cat was treated with Injection DNS (Dextrose Normal Saline) at a dose of 10 ml/kg body weight intravenously, Injection N-acetyl cysteine at a dose of 110 mg/kg body weight intravenously, Injection Amoxicillin-Cloxacillin at a dose of 12.5 mg/kg body weight intravenously, Injection Pantoprazole at a dose of 1 mg/kg body weight intravenously and Injection Ascorbic acid-0.25 ml intravenously. On day 3, there was no facial swelling (Figure 3) and the hydration status of the cat has normalised.

Hence the owner was advised to administer Tablet. N-acetyl cysteine at a dose of 70 mg/kg twice a day orally for 7 days, and Suspension. Amoxicillin-Clavulonate at a dose of 12.5 mg/kg body weight twice orally for 7 days. The cat had an uneventful recovery.

Discussion

Acetaminophen toxicity represents a prevalent and potentially life-threatening concern in veterinary medicine, particularly in cats and dogs, often resulting from unintentional ingestion by pets or misguided administration by well-intentioned owners. (Finco *et al.*, 1975) ^[3]. Notably, cats are especially susceptible to acetaminophen toxicity due to the absence of a safe therapeutic dose, rendering even minimal exposures potentially catastrophic. (Aronson and Drobatz, 1996) ^[4]. In contrast, canine tolerance to acetaminophen is relatively higher, but still risky (Caloni *et al.*, 2014) ^[2], underscoring the importance for vigilant pet owners and prompt veterinary intervention to mitigate the devastating consequences of acetaminophen toxicity in both species.



Fig1a: Cat with acetaminophen toxicity



Fig 1b: The cat with facial edema (Day 1)



Fig 2: Improvement in facial edema (Day 2)



Fig 3: Normalization facial edema (Day 3)

Conclusion

Early presentation, prompt recognition, timely intervention and treatment of acetaminophen toxicity in felines, are essential to treat cats suffering from acetaminophen toxicity, thereby optimizing the chances of survival and providing a favourable prognosis.

Conflict of Interest

Not available

Financial Support

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Reference

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