Usage of Paracetamol by Veterinarians in Small Animals in Australia and New Zealand

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1. Introduction

Paracetamol (acetaminophen) is a widely used antipyretic and analgesic in human medicine since the 1950s, and is increasingly prescribed extra-label in veterinary medicine. Although the exact mechanism of action remains unclear, it is believed to act centrally by inhibiting prostaglandin synthesis through COX-1 and COX-2 peroxidase activity. It is commonly used when non-steroidal anti-inflammatory drugs (NSAIDs) are contraindicated, as an alternative analgesic with minor gastrointestinal, renal and vascular side effects when used appropriately for dogs. In contrast, it is contraindicated in cats due to their limited hepatic glucuronidation capacity, which significantly increases the risk of toxicity.

In Australia and New Zealand, there is no veterinary-licensed paracetamol product for dogs and cats. In contrast, the United Kingdom has approved Pardale-V™, a combination of paracetamol and codeine for use in dogs. Despite the increasing clinical use of paracetamol in veterinary practice, published data on its safety, efficacy and prescribing patterns in small animals remain limited.

Previous studies have explored the pharmacokinetics of paracetamol across species and breeds, demonstrating significant differences in bioavailability and clearance rates, assumed due to differences in protein binding, role of first-pass metabolism, rate of absorption or clearance that is inversely related to body weight. [1] Furthermore, while there are limited data on the precise toxic threshold in veterinary species, hepatotoxicity has been reported at doses exceeding 100 mg/kg, and nephrotoxicity and haematotoxicity at doses above 200 mg/kg[2], with no definitive lethal dose in dogs.

This study aims to describe the current prescribing patterns, safety perceptions, and demographic influences on the usage of paracetamol by veterinarians in Australia and New Zealand.

2. Method

In 2024, we conducted a three-month online survey targeting veterinarians in Australia and New Zealand. The survey captured demographic information, prescription patterns, dosing preferences, indications, safety perceptions and observed adverse effects of paracetamol in small animals. Responses were excluded if participants did not consent to publication, were not currently practicing in Australia or New Zealand, or provided implausible answers. Data were collected and analyzed using REDCap and chi-square tests to compare prescribing trends across demographic groups.

3. Results

A total of 1035 responses were collected of which 1025 responses fulfilled the criteria to be included in the study. The survey revealed that paracetamol is widely prescribed by veterinarians in Australia and New Zealand, with 80.9% of veterinarians reporting increased likelihood of prescribing paracetamol compared to a decade ago. It is primarily used for analgesia (99.7%), often as part of multimodal pain management in combination with NSAIDs, gabapentin, opioids, and other adjuncts, and less commonly as an antipyretic (31.7%). The most frequent dosing regimens were 10 - 15 mg/kg BID, though veterinarians in New Zealand were significantly more likely to prescribe higher doses at 20mg/kg BID or TID. Most surveyed veterinarians (96.5%) did not observe adverse effects at therapeutic doses, with reported side effects being rare and mainly involving hepatic and gastrointestinal side effects. There was a strong awareness of contraindications, particularly the absolute contraindication in cats (98%) and caution in patients with liver disease (80.5%) or hypersensitivity (74.6%).

4. Discussion

The survey support increasing acceptance of paracetamol as part of multimodal analgesia in dogs in Australia and New Zealand. Antipyretic use was less common, with many veterinarians reserving paracetamol for febrile cases where NSAIDs were contraindicated or pending diagnostic test results.

Notably, demographic differences were evident with veterinarians in New Zealand more likely to prescribe higher doses, while those with post-graduate qualifications also favoured higher dosing but tended to prescribe less frequently for chronic pain. Interestingly, veterinarians without post-graduate qualifications appeared more familiar with paracetamol use, potentially due to evolving prescribing trends in recent graduates. A small proportion of respondents expressed concern that prescribing paracetamol might encourage inappropriate at-home administration by pet owners, underscoring the importance of client education when dispensing this medication.

Despite the growing trend of paracetamol use, there is still a lack of veterinary-licensed formulations and precise dosing guidelines, which emphasizes the need for further research to establish safe, evidence-based protocols.

References

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