



Gabapentin

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Gabapentin is often used in dogs and cats to prevent seizures and treat neuropathic pain.

MECHANISM OF ACTION

Although gabapentin is a structural analog of the neurotransmitter gamma-aminobutyric acid (GABA), it appears not to interact with GABA receptors.

- Its mechanism of action is not entirely clear but is likely related to inhibition of calcium and, possibly, sodium channels.¹
- Gabapentin is excreted unchanged in humans but is metabolized to N-methyl-gabapentin in dogs.
 - Results in faster elimination and ability for shorter dose intervals in dogs as compared with humans²
- The metabolism of gabapentin has not been studied in cats, but pharmacokinetics demonstrates faster elimination than in humans, with similar implications for dose intervals as in dogs.³

CLINICAL APPLICATIONS

Gabapentin has been used as an adjunct treatment for seizures in dogs and cats and as treatment for neuropathic pain.⁴⁻⁹

- Gabapentin may be effective as an adjunct treatment for acute pain in humans (eg, pain following some surgeries, including spinal surgery and hysterectomy) and, to a lesser extent, in dogs and cats.¹⁰⁻¹⁶
 - However, meta-analyses of human studies have failed to show strong benefits.^{17,18}
- A single case report described the successful use of gabapentin in the management of neuropathic pain in a horse.¹⁹
- Most evidence showing efficacy of gabapentin in pain management in animals is anecdotal and not based on controlled studies.

The recommended dose is variable, ranging from 10-20 mg/kg q8-12h in dogs^{4,7-9,20} and 3-20 mg/kg q6-24h in cats.^{7,14-16,20}

- A dose of 2.5 mg/kg q12h has been used in a horse to treat neuropathic pain.¹⁹

Gabapentin has anecdotally been used in cats as a sedative to facilitate veterinary visits and procedures (eg, physical examination).

- Doses of 50 mg/cat and 100 mg/cat have been shown to attenuate fear response in cats treated as part of a trap-neuter-return program.²¹

ADVERSE EFFECTS

Sedation and ataxia are the most common adverse effects.^{8,9,20}

- Usually observed when doses at the higher end of the dose

range are administered or when combined with other drugs that cause sedation

- May decrease after a few days of administration^{9,20}

Some liquid formulations of gabapentin contain xylitol, which is toxic in dogs; other formulations are xylitol free.

- The xylitol-containing formulation may result in hypoglycemia in dogs when administered at the higher end of the dose range.
 - However, more severe toxicity (ie, liver failure) is unlikely unless extremely high doses (ie, >80 mg/kg) are used.²⁰

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