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 humans.\(^2\)
- 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 administration9,20

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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**References**