

# Antiepileptic Drugs in Dogs

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## In the Literature

Kelly D, Raimondi F, Shihab N. Levetiracetam monotherapy for treatment of structural epilepsy in dogs: 19 cases (2010-2015). *Vet Rec.* 2017;181(15):401.

## FROM THE PAGE ...

Dogs with structural epilepsy (ie, seizures that occur secondary to an identifiable intracranial cause [eg, inflammatory, neoplastic, or vascular disease]) pose a special concern for veterinarians. These dogs may be neurologically abnormal, with a high risk for progression or worsening of neurologic signs as disease worsens. Commonly accepted first-line antiepileptic drugs (eg, phenobarbital, potassium bromide) carry dose-dependent risks for sedation, ataxia, and weakness, all of which could result in true or apparent clinical progression in neurologically compromised dogs.<sup>1</sup> Patients receiving newer anticonvulsant drugs (eg, levetiracetam) have a reportedly lower incidence of adverse effects as compared with those receiving potassium bromide and/or phenobarbital.<sup>2</sup>

This study evaluated seizure control and tolerability of levetiracetam monotherapy in 19 dogs diagnosed with structural epilepsy. Five of 6 dogs diagnosed with meningoencephalomyelitis of unknown origin (MUO) demonstrated improved seizure control on levetiracetam monotherapy, although phenobarbital was later added to one dog's treatment regimen. Four of 5 dogs diagnosed with seizures secondary to vascular disease were considered to have good seizure control with levetiracetam, whereas none of the 5 dogs diagnosed with neoplasia attained good seizure control with levetiracetam. Of the remaining dogs, one with congenital hydrocephalus attained good seizure control, whereas the 2 others (one with cortical dysplasia, one with traumatic brain injury) attained poor control.

Dogs with seizures that occur secondary to intracranial neoplasia and without definitive treatment (surgery or radiation therapy) often demonstrate progression resulting in

death or euthanasia. Based on the data presented, levetiracetam should not be considered appropriate monotherapy for dogs with seizures that occur secondary to intracranial neoplasia. Levetiracetam may be considered appropriate for dogs with vascular disease or MUO; however, this needs further investigation in a large number of dogs with a standardized treatment protocol for the underlying disease. The lack of a standard treatment protocol in this study was a major limitation. Managing a dog with structural epilepsy requires a balance of unwanted side effects, undesired progression of disease, quality-of-life goals for the dog, and owner financial limitations.

## ... TO YOUR PATIENTS

Key pearls to put into practice:

- 1** Levetiracetam may be useful as monotherapy for a select population of dogs with structural epilepsy, but close seizure monitoring is important.
- 2** If seizure control is not achieved, the addition of phenobarbital or potassium bromide should be considered.

## References

1. Berendt M, Farquhar RG, Mandigers PJJ, et al. International veterinary epilepsy task force consensus report on epilepsy definition, classification and terminology in companion animals. *BMC Vet Res.* 2015;11:182.
2. Charalambous M, Shivapour SK, Brodbelt DC, Volk HA. Antiepileptic drugs' tolerability and safety: a systematic review and meta-analysis of adverse effects in dogs. *BMC Vet Res.* 2016;12:79.