

CBD and Epilepsy / Seizure Management in Dogs

Recent encouraging studies have been conducted with dogs with intractable idiopathic epilepsy, confirming the reduction in seizure frequency, and safety, of CBD oil.

McGrath et al. 2019 [1]

Aim: To assess the effect of oral cannabidiol (CBD) administration in addition to conventional anti-epileptic treatment on seizure frequency in dogs with idiopathic epilepsy.

Design: Randomised blinded controlled clinical trial.

Sample:

26 client-owned dogs with intractable idiopathic epilepsy - 17 finished the study.

Inclusion criteria:

- 1) a tier II confidence level for diagnosis of idiopathic epilepsy
- 2) at least two epileptic seizures per month for a minimum of 16 weeks;
- 3) treatment with at least one conventional ASM; and
- 4) phenobarbital or potassium bromide concentration in the therapeutic range and/or administration of zonisamide or levetiracetam at recommended doses

Method:

- Dogs were randomly assigned to a CBD (n = 12) or placebo (14) group.
- The CBD group received CBD-infused oil (2.5 mg/kg BID) for 12 weeks in addition to existing anti-epileptic treatments.
- The placebo group received oil without CBD under the same conditions
- Seizure activity, adverse effects, and plasma CBD concentrations were compared between groups.

Findings:

- Dogs in the CBD group had a significant (33%) reduction in seizure frequency, compared with the placebo group.
- The number of responders with an at least 50% reduction in seizure frequency was identical in both dog groups.
- Plasma CBD concentrations were correlated with reduction in seizure frequency.
- Conclusion - possibly need higher doses of CBD?
- Dogs in the CBD group had a significant increase in ALP

Garcia et al. 2022 [2]

Design: Randomised blinded clinical trial.

Sample:

14 dogs with idiopathic or presumed idiopathic epilepsy

Inclusion criteria:

- treated for over a year and remained only partially responsive to common highest tolerable doses of medication, yet still having at least one epileptic event per month

Method:

- Treatment: dogs received a capsule containing CBD/CBDA-rich hemp extract in a sesame oil preparation
- Control - dogs received a placebo capsule containing CBD/CBDA-rich hemp extract in a sesame oil preparation.
- Dose: as close to 2 mg/kg body weight BID PO.
- Treatment was switched after 3 months

Findings:

- During CBD/CBDA exposure, seizure frequency as well as the number of days with seizure activity were significantly lower than during the placebo phase
- 6/14 dogs had a $\geq 50\%$ reduction in seizure frequency in the CBD/CBDA treatment phase
- No respective reduction for dogs in the placebo group.
- Except for mild increases in ALP, there were no changes in blood counts and serum chemistry became evident.
- The data argued against a relevant impact on serum concentrations of phenobarbital, zonisamide, and bromide.
- Adverse events were minor with somnolence and ataxia observed in three and four dogs, respectively

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Mogi et al. 2019 [3]

Design: Case reports

Sample:

- Case 1: 3-year 2-month-old, 33-kg MN Labrador Retriever, seizures since 6 mths of age. Approx 6 seizures per year
- Case 2: 11-year 2-month-old, 4-kg MN Papillon. Seizures since 3 years old
- Case 3: 10-year 2-month-old, 2-kg male Chihuahua. Seizures since 3 years old

Method:

- CBD given BID PO for 8 weeks.
- Used CBD-containing full-spectrum hemp extract
- Case 1: dosage CBD @ 0.51mg/kg/day
- Case 2: dosage @ 1.25mg/kg/day
- Case 3: dosage @ 5.0mg/kg/day

Findings:

- Case 1: fewer seizures, less excitable. Owner felt the dog showed improvement.
- Case 2: symptoms unchanged but dog settled down and slept longer
- Case 3: owner felt that seizure-like behaviour decreased slightly with treatment. The owner also reported that the dog showed less aggression toward familiar people, such as the owner's children.

Review article

For a 2022 review article summarising the use of CBD in epilepsy in dogs, see Potschka et al. (2022) [4].

The author's conclusions about CBD and canines can be summarised as follows:

- consider the pharmaceutical quality of the CBD formulation before use
- avoid CBD formulations with > 0.2 % THC
- closely monitor ALP levels
- titre the dose of CBD given, up to but less than 10 mg/kg

References:

[1] McGrath S, Bartner LR, Rao S, Packer RA & Gustafson DL 2019, "Randomized blinded controlled clinical trial to assess the effect of oral cannabidiol administration in addition to conventional antiepileptic treatment on seizure frequency in dogs with intractable idiopathic epilepsy", *Journal of the American Medical Association*, vol. 254, no. 11, pp. 1301-1308.

[2] Garcia, GA, Kube, S, Carrera-Justiz, S, Tittle D & Wakshlag JJ 2022, "Safety and efficacy of cannabidiol-cannabidiolic acid rich hemp extract in the treatment of refractory epileptic seizures in dogs", *Frontiers in Veterinary Science*, vol. 29, 9:939966.

[3] Mogi, C & Fukuyama, T 2019, "Cannabidiol as a potential anti-epileptic dietary supplement in dogs with suspected epilepsy: three case reports", *Pet Behaviour Science*, vol. 7, pp. 11 –16

[4] Potschka H, Bhatti SFM, Tipold A & McGrath S 2022, "Cannabidiol in canine epilepsy", *The Veterinary Journal*, vol. 290, pp 105913. doi: 10.1016/j.tvjl.2022.105913.