Research sheds light on epilepsy treatments – Why don't the fits stop?

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New research from the Royal Veterinary College (RVC) canine epilepsy clinic has shed light on why some dogs do not respond to anti-epilepsy treatments.

Epilepsy is the most common chronic neurological condition found in dogs and humans. It affects around 50,000 canines in the UK and approximately 600,000 people. Epilepsy is not a specific disease but a chronic condition characterised by recurrent seizures.

The most common treatment for canine epilepsy is anti-epileptic drugs (AEDs). But in some cases the side effects of drug treatment can impact upon quality of life as much, if not more than, a dog's seizures. Past studies have also found that in a third of dogs, current drug treatments failed to reduce the number of seizures they experience by 50 per cent.

This study sought to find out why some dogs respond well to treatment, and become seizure-free, while others continue to have seizures long-term. The study analysed patient data from six years of medical history taken from the epilepsy clinic at the RVC's Small Animal Referral Hospital.

At the point of follow up, only 14% of dogs studied were in seizure-free remission.

The results show that seizure density (how close together seizures occur) rather than the number of seizures a dog has is a more telling sign of

achieving remission in canine epilepsy.

Similar results have previously been found in human epilepsy, highlighting the dog as a naturally occurring model of this disorder. Continuing research into the drug treatments of the condition in dogs could also improve understanding of the disorder in human beings.

Traditionally in human medicine, epilepsy patients are treated with AEDs immediately after the onset of the condition. This study found that time to treatment after diagnosis, or the number of seizures experienced before treatment, did not affect the likelihood of achieving remission.

The sex of the dog was also found to be an important risk factor with male animals less likely to go into remission than female dogs receiving AED treatments.

Other studies into canine epilepsy have focussed on a specific dog breed. Due to the data gathered from the RVC hospital, this research was able to look at how epilepsy affects a wider section of dog types. The results found Border Collies and German Shepherds are at a significantly higher risk of not responding to anti-epileptic drugs than other breeds.

Prof Holger Volk, Clinical Director of the RVC's small animal referral clinic and specialist in Neurology and Neurosurgery said: 'Canine epilepsy is a complex condition and can be very distressing for the dog and their owner. Drug treatments can be successful in reducing seizures, but it is important to note that consistent remission is difficult to attain.'

Co-author of the study and Clinical Investigations Research Assistant at RVC, Dr Rowena Packer, added: 'In its worst form canine epilepsy can be life threating to dogs, but it is a dog's long term quality of life that is most affected. It can also take a toll on the owners who have to manage

this unpredictable, uncontrollable condition.

'Therefore it is important manage owners' expectations with regards to drug treatments. Studies like this are important and can have wider implications for the treatment of epilepsy in humans as well as dogs.'

The research paper will be published in academic journal, *PloS One*.

More information: www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0106026

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