RESEARCH PROGRESS REPORT SUMMARY

Grant 03243-A: Comparison of Clorazepate and Levetiracetam as Pulse Therapy for the In-Home Management of Cluster Seizures in Dogs with Idiopathic Epilepsy: A Pilot Study

Principal Investigator: Karen Munana, DVM, MS

Research Institution: North Carolina State University

Grant Amount: $19,848.00

Start Date: 4/1/2024 **End Date:** 3/31/2026

Progress Report: End-Year 1

Report Due: 3/31/2025

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Original Project Description:

Idiopathic epilepsy is the most common chronic neurological disorder in dogs. Approximately half of all dogs with idiopathic epilepsy have cluster seizures, defined as 2 or more seizures within a 24-hour period. Cluster seizures are considered a medical emergency, as dogs with cluster seizures are at increased risk of both medical complications and death. Therapeutic regimens are commonly prescribed that include in-home administration of emergency medication for cluster seizures, but there is a lack of evidence on which to base those treatment recommendations.

The aim of this pilot study is to evaluate and compare the use of two oral treatment protocols for the in-home management of cluster seizures in dogs with idiopathic epilepsy. The researchers hypothesize that an in-home emergency treatment protocol that includes intermittent, or pulse therapy, with either oral clorazepate or oral levetiracetam is effective in controlling cluster seizures in dogs with idiopathic epilepsy. Thirty idiopathic epileptic dogs with a history of cluster seizures will be enrolled in this randomized clinical trial. Dogs will receive oral pulse therapy with either clorazepate or levetiracetam, in combination with intranasal midazolam, for the in-home emergency treatment of cluster seizures. Owners will record data on seizure frequency, medication administered, and adverse effects. The primary outcome measurement will be the number of dogs that respond with no additional seizures over a 24-hour period. The information gained from this study will help guide treatment recommendations for cluster seizures and serve as a basis for future studies, with the goal of improving management strategies for cluster seizures in dogs with idiopathic epilepsy.

Publications:

None at this time.

Presentations:

None at this time.

Report to Grant Sponsor from Investigator:

Idiopathic epilepsy is the most common chronic neurological disorder of dogs. Approximately half of dogs with idiopathic epilepsy have cluster seizures, defined as 2 or more seizures within a 24-hour period, and have an increased risk of epilepsy-related complications or death associated with this seizure pattern. Treatment regimens that include in-home administration of emergency medication for cluster seizures are commonly prescribed, but there is a lack of evidence on which to base treatment recommendations. The aim of this study is to evaluate and compare the effectiveness of two different treatment protocols for the in-home management of cluster seizures in dogs with idiopathic epilepsy; namely, intermittent oral dosing with clorazepate and intermittent oral dosing with levetiracetam, both used in combination with intranasal midazolam. The study medication is compounded into opaque capsules by the NC State Veterinary Hospital Pharmacy, such that neither the owner nor the investigators are aware of which of the medications is being administered to any individual dog. Owners are instructed to administer the study medication during seizure episodes and to record information on specific study forms. To date, 13 dogs have been enrolled in the study, and the study is progressing as planned, with data collected from a total of 37 episodes of seizures for which the study protocol was followed. We continue to actively recruit and enroll dogs, with a goal of enrolling 30 dogs in the study. Data analysis will be performed at study completion. The results of this study will provide valuable information to veterinarians when considering in-home treatment options for cluster seizures in dogs with idiopathic epilepsy.