



AMERICAN KENNEL CLUB
**CANINE HEALTH
FOUNDATION**
PREVENT TREAT & CURE

GRANT PROGRESS REPORT REVIEW

Grant: 01467: *Characterization of Geriatric Onset Laryngeal Paralysis Polyneuropathy in Labrador Retrievers*

Principal Investigator: Dr. Bryden J. Stanley, BVMS

Research Institution: Michigan State University

Grant Amount: \$113,449.00

Start Date: 2/1/2011 **End Date:** 7/31/2013

Progress Report: 12 month

Report Due: 1/31/2012 **Report Received:** 2/1/2012

Recommended for Approval:

(Content of this report is not confidential. A grant sponsor's CHF Health Liaison may request the confidential scientific report submitted by the investigator by contacting the CHF office. The below Report to Grant Sponsors from Investigator can be used in communications with your club members.)

Original Project Description:

Veterinary researchers now believe that a common upper respiratory problem in older dogs is in fact the first sign of slowly developing, generalized paralysis. For many years, the condition has been known as "idiopathic laryngeal paralysis," affecting older dogs, particularly Labrador Retrievers. Signs include the loud, labored breathing of laryngeal paralysis and throat-clearing, followed by slowly progressing neurologic deterioration. Our work has shown that dogs develop breathing problems first, followed by difficulty swallowing. Over the ensuing months they become weak and unsteady until eventually they cannot walk. This progression is distressing for animals and owners alike. Although surgery can significantly help affected dogs breathe more easily, complications from swallowing problems and difficulty ambulating remain. In order to identify ways of better treating and eventually eradicating this condition, we first need to fully understand the disease process and the cause.

The purpose of this project is to undertake a comprehensive study of older dogs with "idiopathic laryngeal paralysis" and characterize their progression post-operatively for 1 year. Diagnostic tests will include regular physical and neurological examinations, measurements of muscle and nerve function, assessments of the swallowing reflex, and a muscle and nerve biopsy. Results will also be compared to a group of non-affected dogs of similar age and breed. Following the patient's demise, owners will be asked for permission to sample selected tissues for further analysis. The results of this study will provide valuable information for full characterization of this disease, which in turn will lead to better management of these patients.

Grant Objectives:

Objective 1: To establish clinical presentation and neurological progression of GOLPP in Labrador Retrievers.

Objective 2: To determine pathologic changes in neural and muscle tissues of affected dogs.

Additional Objective: An additional intent of this study is to bank DNA samples and collect pedigrees of all affected dogs and controls for future genetic investigations.

Publications:**Report to Grant Sponsor from Investigator:**

When completed, this study will provide an accurate and complete characterization of the condition commonly known as "acquired idiopathic laryngeal paralysis" in older dogs (also known as Geriatric Onset Laryngeal Paralysis Polyneuropathy, or GOLPP). Although we are interested in all dogs with GOLPP (e.g., Borzois, Greyhounds, the Newfoundland, Golden Retrievers, Australian Shepherds, and mixed breeds), this study specifically concentrates on Labrador Retrievers, as they are most commonly represented.

Enrollment of affected dogs was ahead of our timeline, and we were fully enrolled with GOLPP dogs by November 2011. This is a 1 year, longitudinal study with customized history questionnaires, physical and neurological examinations every 3 months, with additional detailed testing (radiographs, swallowing studies, EMGs and nerve conductions) at the 6 month and 12 month time points. Almost half of the affected dogs have had their 6 month re-check evaluation (history, neurologic exam, thoracic radiographs, esophagram, EMG/nerve conductions). All dogs responded extremely well to the laryngeal "tie-back" surgery, demonstrating immediate alleviation of respiratory distress. Owner satisfaction is high; all our owners are deeply committed to the objectives of the study, and finding out more about their dogs' condition. Preliminary findings show that all dogs with GOLPP have evidence of a generalized polyneuropathy on their peripheral muscle and nerve biopsies and electrodiagnostic testing, and almost all have some degree of esophageal dysfunction. One dog experienced an episode of aspiration pneumonia, but recovered well. Most of these dogs benefit from prokinetic medications to help their swallowing and decrease throat-clearing. We have not yet compared the 0 and 6 month electrophysiologic results. We have not yet compared the peripheral histopathological findings between affected and age- and breed-matched controls due to slow enrollment of control dogs. We need 8 more elderly Labradors without laryngeal or other neurological dysfunction to use as control or comparisons to our GOLPP dogs. We have been slow to enroll these dogs, but now that we have all of our GOLPP dogs underway, we can concentrate on enrollment of this cohort.

We are also collecting post-mortem samples from GOLPP dogs (not necessarily the enrolled dogs in the longitudinal study), obtained when owners decide to euthanize (typically from ongoing neurological progression). These samples are from widespread areas of the body, including brain and spinal cord. We have almost half of these samples collected, but have not fully analyzed these at this point.

When this study is completed, we will for the first time, have an in-depth description of this condition, as well as information on its pathology and progression. This will be of huge benefit to dogs, owners and veterinarians, as we can work on how to diagnose the condition earlier, better manage affected dogs, and elucidate the underlying cause of GOLPP.