RESEARCH PROGRESS REPORT SUMMARY

Grant 01935-B: Abnormalities in the Stomach's Ability to Contract Predisposes Large-Breed Dogs to Bloat

Principal Investigator: Dr. Laura L. Nelson, D.V.M.

Research Institution: Michigan State University

Grant Amount: $233,774.00

Start Date: 1/1/2014 **End Date:** 12/31/2015

Progress Report: Mid-Year 1

Report Due: 6/30/2014 **Report Received:** 6/27/2014

Recommended for Approval: Approved

(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:

Gastric dilatation-volvulus (GDV or "bloat") is a devastating disease common in large and giant-breed dogs. Occurring most frequently in older dogs with a close relative who has also suffered the condition, the stomach becomes both displaced and distended with air. Without emergency medical stabilization and surgical intervention, affected dogs quickly experience shock, damage to the stomach wall, and death. Most of the research relating to GDV has described risk factors for the disease, determinants of outcome with treatment, and the effectiveness of preventive surgery (gastropexy). However, the underlying cause of GDV remains unknown.

Abnormalities in the ability of the stomach to contract have been documented in dogs after naturally-occurring GDV. An analogous stomach condition in cattle, left-sided displacement of the abomasum (LDA) has been shown to, in some instances, be associated with abnormalities in the motilin gene. Motilin is an important driver of stomach contraction. This suggests that LDA and potentially GDV may be primarily caused by a stomach that does not properly contract, and that this condition may be inherited.

The goals of this study are to determine the relationship of abnormal stomach contraction with GDV and to define the biochemical and genetic alterations that may be associated with these stomach abnormalities. In the long term, we hope to develop a test to identify dogs at high risk

for GDV that would allow selective breeding to eliminate the condition and to determine which dogs will benefit most from prophylactic gastropexy or other preventive therapies.

Grant Objectives:

1. To evaluate fasting gastric motility in High Risk (HR), Low Risk (LR), Wild Type (WT) and Affected (AF) cohorts of large and giant-breed dogs as a potential means of determining predisposition to GDV.
2. To determine whether plasma levels of motilin and ghrelin differ between WT, LR, HR, and AF cohorts of large breed dogs.
3. To identify a causal gene mutation associated with high risk of GDV.

Publications:

None at this time.

Report to Grant Sponsor from Investigator:

Our study group would like to sincerely thank the AKC Canine Health Foundation and its sponsors for their support of this project. The first months of our study have been spent validating the gastrointestinal hormone assays and recruiting participants. We have now nearly completed enrollment and sample collection from control dogs and Great Danes that have not experienced GDV. Currently, we are finishing gastrointestinal motility testing in Great Danes and are beginning to earnestly recruit GDV survivors for all of our targeted breeds and to set dates for sample collection for Weimaraners. We are also looking forward to attending several breed events this summer to assist in case recruitment. We are deeply grateful for the enthusiasm of the owners and breeders that we have worked with so far and are looking forward to the upcoming months.