Title:
Aldosterone breakthrough during angiotensin-converting enzyme inhibitor or angiotensin II receptor blocker therapy in dogs with advanced myxomatous mitral valve disease

Investigators:
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If interested, please have your primary veterinarian request additional information through the UGA Cardiology service by calling the small animal referral coordinator at 706-542-5362.

Study description:
An estimated 2-5 million pet dogs in the United States suffer from myxomatous mitral valve disease (MMVD), a condition that leads to the development of congestive heart failure (CHF) in approximately 15%. The pathogenic role of renin-angiotensin-aldosterone system (RAAS) over-stimulation in the development and maintenance of this serious clinical syndrome is well accepted, and medical blockade of the RAAS is considered part of standard-of-care for its treatment.

While the clinical benefit of RAAS inhibition is clear, it is also apparent that blood levels of aldosterone (one of the major effectors of this system) often exceed pretreatment levels in many patients receiving these agents; an unexpected and undesirable phenomenon known as aldosterone “breakthrough” (ABT), which may be caused by incomplete blockade of the system, among other causes.

The purpose of this study is to compare the incidence of ABT in client-owned dogs with advanced MMVD treated with either an angiotensin-converting enzyme inhibitor (enalapril) or an angiotensin II receptor blocker (telmisartan), drugs that are used to block the RAAS.

Inclusion criteria:
- Dogs diagnosed with myxomatous mitral valve disease with evidence of heart enlargement

Exclusion criteria:
- Dogs currently experiencing an episode of, or history of, congestive heart failure
- Dogs with infectious endocarditis
- Dogs with inappropriately low blood pressure
- Dogs with elevated blood potassium levels

Dogs enrolled after screening will receive either telmisartan or enalapril orally for 30 days. Rechecks will be required 7 days and 30 days after study initiation. Blood and urine will be collected, and blood pressure will be measured, on the day of enrollment and again at each recheck visit.
Clients are responsible for the cost of the initial referral exam and any imaging and bloodwork tests performed as part of routine workup (e.g., echocardiogram, chest X-rays, serum biochemistry analysis).

If the dog meets inclusion criteria and found to be suitable for enrollment, the study will pay for baseline bloodwork, as well as costs associated with recheck appointments at 1 week and 1 month following enrollment, including examination fees, blood and urine analyses, and blood pressure measurement. In addition, the cost of study medications will be covered during the 1-month study period.

**Duration of study:**
The study is currently OPEN and accepting patients.

**Potential benefits to veterinary medicine:**
The results of this study will provide veterinarians with objective information to guide the way in which they approach the renin-angiotensin-aldosterone system blockade in clinical patients, which could lead to increased survivability of dogs affected by MMVD.