Veterinary Health Center
AT KANSAS STATE UNIVERSITY
TO DISCOVER. TO TEACH. TO HEAL.

"Evaluation of oxidative stress in nonazotemic cats with increased symmetric dimethylarginine concentrations"

Purpose and brief description of the study:

The purpose of the study is to see if older cats with very early evidence of chronic kidney disease (CKD) are affected by oxidative stress compared to healthy cats. Cats commonly lose kidney function as they get older, and this change is irreversible and progressive. There is no cure for CKD, and little is known about how to prevent it or slow its progression, especially in the early stages. There is a relatively new blood marker of early kidney disease called symmetric dimethylarginine (SDMA). We already have some data which shows that oxidative stress, indicated by a compound called F_2-isoprostane present in the urine, may play a role in the worsening of CKD in the early stages. Oxidative stress results in an imbalance of reactive oxygen species and the body's natural antioxidant capacity, and these reactive oxygen species are toxic to cells. The results of this study could lay the groundwork to change our standard treatment recommendations by giving us evidence to institute treatment earlier, allowing cats with CKD to feel better longer and live longer.

Eligibility:

Since the prevalence of CKD increases as cats' age, we are looking for older cats who are apparently healthy at home to participate in this study. **We are particularly interested in cats who have an increased SDMA as the only abnormality on previous blood work.**

Specific inclusion criteria:

- Cats must be ≥10 years of age and deemed healthy based on history and physical examination.
- Urine specific gravity must be ≥1.035 at the time of enrollment.
- Normal creatinine (<1.6 mg/dL)
- High SDMA (≥15 µg/dL)

Specific exclusion criteria:

- Concurrent disease such as hyperthyroidism, urinary tract infection, diabetes mellitus, inflammatory bowel disease, liver disease, heart disease, cancer, or advanced kidney disease is not allowed.
- Cats cannot be taking any antioxidant supplements at home.
- Cats cannot be eating a diet fortified in antioxidants such as a kidney diet or diet for arthritis.

What does participation in this study involve?

This study only involves one visit. Your cat will be screened for inclusion in this study by collecting urine for evaluation of a urine specific gravity (USG). If the USG is ≥1.035 then your cat is eligible to participate. Less than 1 tablespoon of blood will be collected for a complete blood count (CBC), chemistry profile, total T4, and SDMA. Additionally, less than 1 tablespoon of urine will be collected through a voided sample or cystocentesis for initial USG evaluation, a urinalysis, and urinary F_2-isoprostane level. The hair from your cat's abdomen will also be shaved for an ultrasound. If needed to complete the ultrasound, a standard dose of a sedative (butorphanol 0.2-0.4 mg/kg IV) will be given. No follow up is required for this study.

Client compensation:

This study will cover the cost of the physical examination, CBC, chemistry profile, urinalysis, total T4, SDMA, F_2-isoprostane, ultrasound, and sedation for the ultrasound if needed.

Client responsibilities:

By participation in this study, owners ensure that there are no known concurrent diseases or antioxidants given to their cat. Additionally, you allow your cat to stay at the Kansas State University Veterinary Health Center for the day in order to collect the samples stated above and complete the diagnostics pertaining to the study.

Contact Information:
Please email Dr. William Whitehouse, wwhitehouse@vet.k-state.edu and Dr. Megan Kelley, mdkelley3@vet.k-state.edu for more information about this study and to see if your cat is eligible to participate.