Title:

Early detection of kidney disease in dogs: a comparison of serum SDMA and Creatinine versus GFR measured by Iohexol clearance

Abstract: **(Your abstract must follow this structure)**

Objectives:

This study evaluates symmetrical dimethylarginine (SDMA), as an alternative marker of reduced GFR, compared to serum creatinine (sCr), in a clinically representative population of dogs with suspected chronic kidney disease (CKD).

Methods:

This prospective study included 62 dogs suspected of having CKD based on clinical findings but with SCr within the laboratory reference range. Each dog had SCr, SDMA and GFR (iohexol clearance) measured concomitantly. The dogs were stratified in four weight quartiles (Bexfield et al. 2008) and the individual relative GFR deviation compared to the average GFR of the relevant weight quartile (%GFR) was calculated. Correlation between SCr or SDMA and %GFR were evaluated and the coefficient of determination (R^2) calculated.

Results:

Forty-three dogs had a GFR below the mean of their weight quartile. Nine were >40%, 8 were 30-40%, 7 were 20-30%, 19 were <20% below mean GFR. SCr and SDMA were inversely correlated with %GFR: the relationship was stronger for creatinine (R^2= 0.51) than SDMA (R^2= 0.38). SDMA and SCr were elevated in 6/19 (32%) and 0/19 dogs with normal/increased GFR respectively. SDMA and SCr performances are summarised below:

	SDMA >14 µg/dL	SCr >125 µmol/L
Sensitivity	72.0%	25.6%
Specificity	68.4%	100%
Positive Predictive Value	83.7%	100%
Negative Predictive Value	52.0%	37.2%

Statement:

SDMA was more sensitive than creatinine for detection of early decreases in GFR but generated falsely positive results in 32% of the cases. Longitudinal studies are warranted to determine the predictive value of reduced GFR patients in determining the occurrence of clinical CKD and survival in these patients.