The study included 64 dogs: 31/64 were *Leptospiral-iAKI* and 33/64 *Other-iAKI* (non-infectious inflammatory disease n=10; toxic n=8; sepsis n=6; neoplasia n=3; trauma n=3; diabetic ketoacidosis n=3). Renal function was more severely compromised in *Leptospiral-iAKI* compared with *Other-iAKI* dogs (serum creatinine mg/dL: 6.9, 1.1- 8.7 vs 4.3, 1.4-21.4, P=0.04, R.I. 0.65-1.40). Urine proteins and electrolytes loss was detected in both groups; however, no significant differences between *Leptospiral-iAKI* and *Other-iAKI* were identified for urine protein to creatinine ratio (UP/C: 1.7, 0.13-184 vs 2.2, 0.09-72, P=0.58; R.I. 0-0.5) and FE (%) of electrolytes (potassium: 92.3, 0.6-480 vs 61.5, 5.3-301, P=0.11, R.I. 3.7-20.4; magnesium: 8.9, 2.8-141 vs 10.6, 0.9-81, P=0.9, R.I. 0.5-3.9; phosphate: 31.9, 0.8-125 vs 32.5, 0.8-91, P=0.6, R.I. 5.7-24.6; sodium: 2.6, 0.08-64.3 vs 2.1, 0.04-69.3, P= 0.7, R.I. 0.05-0.92; calcium: 3.8, 0.12-70 vs 4.2, 0.14-56 vs, P=0.8, R.I. 0.05-0.33). Similarly, no significant differences were detected for uNGAL concentration (uNGAL pg/mL: 146960, 1204-308740 vs 22200, 637-1241800, P=0.18, R.I. 0-1200) and uNGAL to creatinine ratio (uNGAL/C x10^3 159, 1.4-545 vs 40, 0.5-2057, P=0.33, R.I. 0-0.4).

Patterns of tubular damage and dysfunction in dogs with leptospirosis resemble the ones reported in humans. However, they are not disease-specific, as neither FE of electrolytes nor uNGAL were able to feature the infection.

Disclosures

No disclosures to report.

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Big endothelin-1 in cats with CKD: preliminary evaluation

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In human medicine the concentration of serum endothelin-1 (ET-1) increases in hypertension and CKD. Also urinary ET-1 correlates with the severity of renal disease and the magnitude of proteinuria. In dogs, increased concentration of ET-1, evaluated indirectly by the precursor Big Endothelin-1 (big-ET1), seems to be associated with the severity of CKD and hypertension.

The aim of this study was to gain information about serum and urinary levels of big-ET1 in cats with CKD, with and without hypertension and proteinuria.

Big-ET1 was measured with a solid phase sandwich ELISA developed for human big-ET1 (IBL international GmbH, Hamburg, Germany).

Twenty serum samples and 69 urinary samples obtained from 42 cats at different IRIS stages (12 sampled once, 24 sampled twice and 3 sampled thrice during a 6-12 months follow up) were assessed. The kit used to measure Big-ET1 was validated in urine (UBig-ET1) but not in serum since almost all the serum samples failed to yield results above the detection limit of the method. Results from the different groups of cats were statistically compared using Mann-Whitney U and Kruskal-Wallis tests.

Big-ET1 was virtually absent from most of the serum samples.

UBig-ET1 and UBig-ET1/UC ratio were significantly positively correlated with serum creatinine (p=0.046; p=0.007).

UBig-ET1 concentration and uBig-ET1/UC ratio did not significantly differ between “at risk” and “CKD” cats.

UBig-ET1 was not significantly different between IRIS stages, whereas UBig-ET1/UC ratio was significantly higher (p=0.001) in IRIS 3-4 group.

Both uBig-ET1 and uBig-ET1/UC ratio did not differ significantly between “at risk” cats that remained stable and “at risk” cats that developed CKD (stage IRIS 1 or 2) during the monitored period.

Grouping according to SBP (higher or lower 150 mmHg), no significant difference was found for UBig-ET1 and UBig-ET1/UC ratio between normotensive and hypertensive cats.

UBig-ET1 did not differ significantly between samples sub-staged by proteinuria, according to IRIS guidelines. Conversely, UBig-ET1/UC was significantly higher in proteinuric cats when compared to non proteinuric cats (p=0.026).

These results suggest that SBP and proteinuria are not important determinants of the UBig-ET1 level in cats. This is not surprising, since in people urinary ET-1 is considered to reflect mainly renal production, instead of circulating levels, because of its autocrine and paracrine actions. No specific information is available about the physiology of ET-1 in cats and further studies are needed to explain its low serum concentration.

Disclosures

Disclosures to report.

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Evaluation of renal function in dogs infected by Dirofilaria immitis in relation to microfilaremia, parasite burden and pulmonary pressure

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Heartworm disease (*Dirofilaria immitis*) is characterized by intimal proliferation of the pulmonary arteries, pulmonary hypertension and heart failure. Furthermore, *D. immitis* also causes renal damage, primarily defined by the development of proliferative glomerulonephritis. However, few studies exist evaluating the prevalence of renal injury in dogs with heartworm.

The aim was to assess specific serum and urinary renal parameters in dogs infected by *D. immitis* and evaluate the impact of the parasite burden, microfilaremia and pulmonary pressure.

Twenty-two heartworm-infected dogs were evaluated. Microfilaremia was established by the Knott test while the parasite burden and pulmonary pressure were determined by echocardiography. Urinary and serum creatinine, microalbumin as well as serum urea were determined by a spectrophotometric system. Urine reactive strips were used to determine urinary parameters (Glucose, Bilirrubin, Urobilinogen, Ketones, Blood, pH, nitrogen, leucocytes, color, turbidity and density). Urinary protein concentration was determined by the Pyrogallol Red-Molybdate method. Microalbumin/urine creatinine ratio (A:C ratio) and urine protein/creatinine ratio (UP/C ratio) were calculated.

Microfilaremia was present in 40.9% of the dogs and pulmonary hypertension was present in 52.4% of them. Parasite burden was high