ESVNU – P – 5
SYMMETRIC DIMETHYLARGININE (SDMA) AND NEPHROPATHY IN DOG: DIAGNOSTIC UTILITY IN CLINICAL PRACTICE. J. Zambarbieri, M. Giraldi, B. Ruggerone, S. Faverzani, P. Scarpa. University of Milan, Milan, Italy

Symmetric dimethylarginine (SDMA) has been proposed as a sensitive and specific renal biomarker whose concentration increases earlier than serum creatinine (SCr) as glomerular filtration rate decreases. SDMA is a promising parameter in the diagnosis and management of chronic kidney disease (CKD) and it is included into the International Renal Interest Society (IRIS) guidelines.

The aim of the study is to assess the usefulness of a single determination of SDMA in the evaluation of renal status in dogs at risk or affected with CKD, and to evaluate its correlation with SCr and other parameters of renal function.

Ninety-five dogs were consecutively selected within the patients referred to the University Veterinary Hospital of Milan. On the first clinical examination, all these dogs underwent to physical examination, hematology and blood chemistry (included serum SDMA and SCr). Urinalysis and urinary protein:creatinine ratio (UPC) were performed in 89 cases while ultrasound examination was done in 60 dogs. All the dogs were staged according to the IRIS guidelines. Statistical analysis was performed by JMP 7 software (SAS Institute Inc., Cary, USA).

SDMA showed, as expected, a significant correlation with SCr, urine specific gravity (USG) and UPC ratio ($P < 0.05$). IRIS staging, according to SCr, resulted as follows: 26 (27.4%) dogs were included in stage 0, 39 (41%) in stage 1, 12 (12.6%) in stage 2, 17 (17.9%) in stage 3 and 1 (1.1%) in stage 4. SDMA evaluation modified IRIS staging in 12 (12.6%) dogs. SDMA was increased in 51 (53.7%) dogs; in 8 (15.7%) of these, SDMA was equal to the cut-off value (14 μg/dL). In 29 (56.9%) of the "high SDMA" cases, SCr was >1.4 mg/dL while in the others 22 (43.1%) there were already one or more alterations: decrease of USG in 14 (63.6% of 22) cases, increase of UPC ratio in 15 (68.2%) cases, ultrasound features suggestive of CKD in 9 (40.1%) cases. SDMA was the only altered parameter in 4 (4.2%) dogs. SDMA was normal and creatinine slightly increased in 1 (1.1%) dog.

SDMA is a useful and reliable parameter for the diagnosis and management of CKD but the evaluation of other markers of renal function and diagnostic imaging are essential in order to correctly approach the patient from the diagnostic and therapeutic point of view, especially at the first clinical presentation. Furthermore, patients with normal SCr and altered SDMA require a further evaluations to confirm the development of CKD.

Disclosures: No disclosures to report.

ESVNU – P – 6
ULTRASOUND-GUIDED RENAL BIOPSY SIGNIFICANTLY INCREASES URINARY N-ACETYL-BETA-D-GLUCOSAMINASE INDEX ACTIVITY IN DOGS WITH DIFFUSE PARENCHYMAL NEPHROPATHIES. A.R. Codea[1], V.M. Mircean[1], O. Sarpataki[1], B. Sevastre[1], A. Bizo[2], C.P. Popovici[1], S.A. Bogdan[1], L.I. Oana[1]. [1]Faculty of Veterinary Medicine Cluj-Napoca, Cluj-Napoca, Romania, [2]University o Medicine and Pharmacy "Iuliu Hatieganu", Cluj-Napoca, Romania

Ultrasound guided renal biopsy is an essential diagnostics method which, by facilitating histopathological examination can increase the accuracy of the differential diagnosis between acute and chronic nephropathies and will help the clinician perform an etiologic diagnosis, issue a prognosis and orient the therapy of the majority of parenchymal nephropathies. Due to the relative invasiveness and potential adverse effects, the use of renal biopsy is limited among practitioners. In this study we evaluate the intensity of renal damage induced by renal cortex sampling and the clinical consequences of such a procedure. We examined 28 dogs, mixed breed and variable ages, 11 (39, 29 %) males and 17 (60, 71 %) females that were referred to our clinic and underwent ultrasound guided renal biopsy in order to establish a definite diagnosis. Patients were presented with a variety of diffuse nephropathies: kidney lymphoma: 1 (3.57%), glomerulonephritis: 13 (46.43%), tubulointerstitial nephritis: 11 (39.29 %) and nephrocalcinosis: 3 (10.71%) of which 18 (64.29 %) were in acute kidney failure and 10 (35.71 %) were chronic renal patients. The type and the severity of renal lesions were correlated with changes in urinary NAG index (iNAG), and specific serum renal damage markers such as urea, creatinine, phosphorus and ionized calcium. To quantify the side effects of percutaneous renal biopsy the magnitude of post biopsy hematuria and changes in urinary iNAG activity were evaluated. The results indicate a significant post biopsy increase in urinary iNAG activity in all patients that underwent this procedure (100.08 ± 34.45 (U/g) pre-biopsy iNAG vs. 147.65 ± 33.26 (U/g) post-biopsy iNAG, $P < 0.001$) suggesting an intensification in renal tubular damage consecutive to kidney puncture and sampling.

Transitory macro- or microhematuria were constant findings in all dogs that underwent ultrasound guided renal biopsy but the magnitude and extent could not be associated with PLT(10^9/L), aPTT (s) and PT (s) levels in our patients, and resolved after 12–24 h without therapeutical interventions.

Percutaneous ultrasound guided renal biopsy is a relatively safe minimal invasive diagnostic procedure which will induce a series deleterious effects on kidney structure and function, but we consider that a correctly obtained tissue sample with a high diagnostic value is of greater importance than the complications associated the sampling procedure.

Disclosures: No disclosures to report.

ESVONC – P – 2
EVALUATION OF INFECTIVE AND REPLICATIVE PROPERTIES OF A REPLICATION-SELECTIVE ONCOLYTIC VACCINIA VIRUS (VVTG17990) ON CANINE, FELINE, PORCINE AND HUMAN CELL LINES. J.S. Béguin[1], C. Maurey[1], V. Nourtier[2], J. Foloppe[2], P. Erbs[2], B. Klonjkowski[1]. [1]Ecole Nationale Vétérinaire d'Alfort, Université Paris Est, Maisons-Alfort, France, [2]Transgene, Illkirch Graffenstaden, France

Oncolytic virotherapy with tumor selective viruses offers a promising treatment modality for cancer. In human medicine, Vaccinia virus (VV) has shown encouraging results on tumor explants. This biotechnology is underused in veterinary oncology.

First objective of this study was to investigate the capacity of various species cell lines to support infection by a replication-selective oncolytic VV (VVTG17990). Our second objective was to assess replication potency of VVTG17990 on those cell lines.

A thymidine kinase and ribonucleotide reductase genes-deleted VV expressing green fluorescent protein (GFP) was designed (VVTG17990).

Non tumoral canine (DKE1), feline (CrFK), porcine (PK-15) and human (293) cell lines were used as well as tumoral canine (A72) and human (HeLa) cell lines.

Susceptibility was evaluated 16 h after infection with VVTG17990 using fluorescence microscopy and flow cytometry. Multiplicity of infection (MOI) of 0.1, 0.01 and 0.001 were tested.

Virus titers were evaluated 4 days after infection at a MOI of 0.0001 and 0.00001, by standard plaque forming assay on culture medium and cell lysate.

All experiments were performed in triplicate.

GFP expression was detected by fluorescence microscopy 16 h after infection for all cell lines even with low infective doses. Flow cytometry allowed an assessment of a dose dependent infection of cells. For all cell lines, more than 88% of cells were infected at a MOI of 0.1. Equivalent percentage of infection was noticed for HeLa, 293 and PK-15 at a MOI of 0.01. On the other hand, lower infection was assessed for DKE1 (55%), A72 (27%) and CrFK (21%). At a MOI of 0.001, higher percentage of infection was observed for 293 (32%) and PK-15 (25%). For the others, less than 13% of cells were infected. Tumoral status of cell lines didn't seem to influence susceptibility to VVTG17990.

Interestingly, 16 h after infection VVTG17990 proved effective lytic potency on cell lines. Lytic potency was more important with higher viral doses.

A replication factor of 10^6 to 10^7 was determined 4 days after infection for all cell lines, except for feline cell lines (about 10^3). Tumoral status of cell lines didn't seem to influence the replication factor.

This study proves that canine, porcine and human cell lines support infection by VVTG17990 with a high replication factor. In