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Evaluation of a commercial ELISA for measurement of feline urinary alpha1-microglobulin.

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Abstract

Urinary alpha1-microglobulin (a1M) in people is a biomarker of renal tubular damage (Bazzi, 2001), but it has not yet been used in cats with chronic kidney disease (CKD).
The aim of this study was to validate an ELISA test marketed for the measurement of feline a1M.
Thirty-four urine supernatants collected from cats affected by or at risk for CKD were assayed by SDS-AGE, to classify patients according to presence or absence of low molecular weight proteinuria suggestive of tubular damage.
Two samples with and one without tubular bands were used to evaluate intra-assay variability, linearity under dilution (LUD) and spiking recovery test (SRT) of the ELISA. Then, a1M concentration was measured in samples with (n°=10) or without (n°=25) tubular bands. The standard solution included in the kit was also assayed by SDS-AGE.
The intra-assay CVs was >20%. LUD and SRT showed that the test is not accurate. No significant difference was found between a1M concentration in samples with and without tubular bands (median values: 35.19 and 40.83 µg/mL respectively). SDS-AGE on the standard solution failed to identify bands with molecular weight consistent with a1M but showed the presence of albumin.
Results of this investigation did not support the use of this test to measure a1M in cats likely due to the absence of a1M in the standard solution provided with the kit.

References

Bazzi, C., Petrini, C., Rizza, V., Arrigo, G., Beltrame, A., Pisano, L., & D'amico, G., 2001. Urinary Excretion of IgG and alpha1-Microglobulin Predicts Clinical Course Better Than Extent of Proteinuria in Membranous Nephropathy. American Journal of Kidney Diseases, 38(2), 240–248.

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