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PLASMA CYSTATIN C IN THE CAT. REFERENCE VALUES, CHANGES WITH RENAL FAILURE AND OTHER DISEASES

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Objective: Cystatin C, a small protein (Mr ~ 14000) is an earlier marker of renal failure than plasma creatinine in humans. In dogs, its plasma concentration is also increased in renal failure. The aim of this study was to investigate whether plasma cystatin C could be used in the diagnosis of kidney diseases in the cat.

Methods: Plasma cystatin C concentration was measured by an immunoturbidimetric technique for human cystatin C (Dako reagents, Cobas Mira analyzer) in 99 clinically healthy cats (controls) with plasma creatinine and plasma urea within normal range, 75 cats (group A) with clinical signs of renal disease and plasma creatinine and/or plasma urea above the upper limit of the reference interval, 35 cats with clinical signs of renal disease and normal plasma urea and plasma creatinine, 24 clinically healthy cats with elevated creatinine and/or urea and 12 cats with other diseases. Data were analyzed by variance analysis, non-parametric comparison of means and correlation calculations.

Results: In controls, the distribution of plasma cystatin C was neither gaussian nor log-gaussian; non-parametric determination of the reference interval gave the following: median = 1.6 mg/L, 0.025/0.975 quantiles: 0.34/4.11 mg/L. In group A, mean plasma cystatin C was significantly elevated ($P < 0.05$): median and range were 2.59 and 0.35/9.52 respectively, but 60/75 cats had values ≤ 4.11 mg/L. In other groups, plasma cystatin C did not differ from controls ($P > 0.05$). Correlation between plasma cystatin C and creatinine or urea was low, whatever the group.

Discussion and Conclusion: The range of normal values of cystatin C in cats was much wider than in humans and dogs, in which the upper limit is about 1.3 to 1.5 mg/L. This might result from a poor specificity of rabbit anti-human cystatin C antibodies for cat cystatin C and unspecific binding to other plasma proteins. Moreover there was a great overlap of values between healthy and diseased animals. At this point, plasma cystatin C cannot be recommended for kidney function testing in cats.

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