J Vet Clin Vol. 23, No. 2(Suppl.) November (2006)

Investigation of UPC (Urine Protine:Creatinine) in Proteinuric Dogs

Hanna Pyoun, Kyoung-won Seo, Byung-hoon Lee, Hee-sup Jung, Ji-eun Cho, Cheol-yong Hwang, Hwa-young Youn*

Veterinary medical teaching hospital, College of veterinary medicine, Seoul National University

Introduction: Proteinuria refers to an abnormal (i.e, excessive) amount of protein in urine. Persistent renal proteinuria is associated with greater renal morbidity, mortality and adverse patient outcomes. It is also regarded as an important early marker of CKD and may be associated with hypoalbuminemia, hypertension and renal amyloidosis. Evaluation of proteinuria in veterinary medicine has evolved from semi-quantitative and somewhat subjective assessments using the urine dipstick to the more quantitative urine protein:creatinine (UPC) ratio.

Material and methods: Samples were obtained from dogs which had proteinuria (dipstick) without pyuria/hematuria or were suspected kidney diseases. An urinalysis including USG (urine specific gravity), urine dipstick, urine sediment, UPC and serum panel (BUN, creatinine) was performed from total 62 dogs from December 2005 to October 2006. The IDEXX VetTest UPC slide and the VetTest analyzer were used. Test procedure: 1) urine sample preparation; cystocentesis, centrifuge 2) perform Upro. test 3) dilution with distilled water (20folds) and mix 4) perform Ucrea. test 5) caculate UPC

Results: Fifty-six dogs and ninety-seven measurements were classified into 6 groups depend on the UPC values and azotemia. Group 1: azotemic & UPC <0.5; 6 dogs, group 2: azotemic & UPC $\geq$0.5; 26 dogs, group 3: nonazotemic & UPC <0.5; 10 dogs, group 4: nonazotemic & UPC 0.5-1; 6 dogs, group 5: nonazotemic & UPC 1-2; 3 dogs, group 6: nonazotemic & UPC $\geq$2; 3 dogs, 2 dogs were complexed.

Clinical relevance: If the intervention of proteinuria is accomplished early, it will slow the CKD progression and have much greater beneficial effect on prognosis. Urine dipstick has low specificity and sensitivity, so it should always be followed up by a confirmatory test. UPC is quantitative measure of proteinuria and help 1)screening for early renal disease 2)monitoring the progression of renal disease 3)assessing therapeutic responses 4) evaluating or predicting prognosis. Recommended responses to persistent renal proteinuria is 1) Prospective monitoring 2) Diagnostic investigation 3) Therapeutic intervention that depend on the magnitude of proteinuria (UPC values) and azotemia.

* Corresponding author: hyyoun@snu.ac.kr