Preview Kidney Function in Civet (Paradoxurus hermaphroditus): Especially Preview of Urea Nitrogen and Creatinin

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Abstract

Civet is a rare, nearly to extinct animal. Urea and creatinine concentrations in serum are commonly measured as indicators of renal function in clinical settings and as indices of nutritional status in animal but this reference values for the civet are not yet established. This study aimed to assess renal function seen an picture of urea nitrogen, and creatinine at 3 healthy of Civet (Paradoxurus hermaphroditus). The mean values of urea nitrogen were 8.42 ± 1.54 mg /dl while creatinine were 3.16 ±1.65 mg/dl. These results contribute to the picture of kidney function in Hermaphroditus Paradoxurus species as a preliminary determination of the health status of these animals.

Key words: Urea Nitrogen, Creatinine, Paradoxurus hermaphroditus

Introduction

Laboratory studies to evaluate function of Civet organ are more informative when results are analyzed in the context of normal values. Nutrition, age, sex, genetics, stress and transportation are all known to affect biochemical parameters observed between tropical and temperate animals (Ogunsanmi et al, 1994). Urea and creatinine concentrations in serum are commonly measured as indicators of renal function in clinical settings and as indices of nutritional status in animal. Creatinine is produced during muscle catabolism and blood levels are generally proportional to an animal's muscle mass, while urea is the end product of nitrogen metabolism and more closely reflects protein intake (Saltz and White 1991). Urinary creatinine can be used as an index of concentration when comparing urine samples because it is freely filtered at the glomerulus and excretion is relatively constant. But, even so up until this time, the operation sketch of civet's kidney as one of the wild animal seen from the urea nitrogen and creatinin projection has not been revealed much. The aim of the current study was to determine of urea nitrogen and creatinine values on these parameters in civet.

Materials and Method

Blood was collected from three healthy civet with 2-4 months old adapted for two weeks in a cage and get food freely through the femoral vein. Sample of blood immediately separated for urea nitrogen and creatinin by standard methods as described by Kraft and Duerr (1999) and Tedesco et al., (1991). The data were given as mean and standard deviation.

Results

The mean and standard deviation of urea nitrogen and creatinin is shown on table 1.

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Parameters	Civet (our study)	Wild grasscutters (Opara et al., 2006)	Captive reared grasscutters (Ogunsanmi et al, 2002, n=10)	African Giant Rat (Oyewale et al, 1998)	Pangolin (Oyewale et al, 1998)	Nigerian goats (Oduye & Adedovoh, 1976) (n)	White Fulani cattle (Oduye & Fasanmi, 1971)	Human (Mcfarlene et al, 1970)	Holstein heifer (Rasooli et al., 2004)	West African Dwarf (WAD) goats (Opara et al., 2010)	Spanish ibex from Andalusia (Perez et al., 2003)	wild-dusky-footed wood rats (*Neotoma fuscipes) (Weber et al., 2002)*
Urea (mg/dl)	8.42 ± 1.54	21.87±2.84	27.00±6.86	11.71±2.3 (14)	16.40±3.89 (10)	44.07±10.81 (70)	ND	20.0±5.10	1.84±0.04 (Summer 1.65±0.04 (Winter)	37.9 ± 1.7	44.46 ±15.5	20.6±6.21
Creatinine (mg/dl)	3.16 ± 1.65	1.2±0.14	1.29±0.15	0.59±0.10 (14)	0.75±0.11(10)	ND	ND	ND		0.7 ± 0.04	1.7±0.7	0.3±0.12

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Creatinine (mg/dl)	3.16 ± 1.65	1.2±0.14	1.29±0.15	0.75±0.11(10)	0.59 ± 0.10 (14)	ND	ND	ND		0.7 ± 0.04	1.7±0.7	0.3±0.12

Table 1. Comparison of urea nitrogen and creatinin (Mean±SD) in Civet (our study), Wild grasscutters, Captive reared grasscutters, African Giant Rat, Pangolin, Nigerian goats, White Fulani cattle, Human, Holstein heifer, West African Dwarf (WAD) goats, Spanish ibex from Andalusia, Wild-dusky-footed wood rats (*Neotoma fuscipes)*

ND =NOT DETERMINED

Discussion

The Urea Nitrogen's concentrate is on 8.42 ± 1.54 mg /dL lower than urea nitrogen concentrate in Wild grasscutters (Opara et al., 2006), Captive reared grasscutters (Ogunsanmi et al, 2002), Captive reared grasscutters (Ogunsanmi et al, 2002), African Giant Rat (Oyewale et al, 1998) , Pangolin (Oyewale et al, 1998), Nigerian goats (Oduye & Adedovoh, 1976), Human (Mcfarlene et al, 1970), West African Dwarf (WAD) goats (Opara et al., 2010; Ikhimioya and Imasuen, 2007), Girgentana goat (Piccione et al., 2010), mountain reedbucks (Reduncula fulvorufula) (Vahala et al., 1991), and cape hunting dogs (Vahala et al., 1990). But, the concentration is still higher than the urea nitrogen's percentage in Holstein heifer (Rasooli et al., 2004). The differences of urea nitrogen in many species of animal happen because the different of loss of extracellular fluid, the difference respond towards stress because of the heat and the food (Rasooli et al., 2004), moreover, because the different condition of excessive tissues protein catabolism associated with protein deficiency (Oduye and Adadevoh, 1976). At the same time, the concentration of creatinine, were 3.16 ± 1.65 mg/dl higher than Wild grasscutters (Opara et al., 2006), Captive reared grasscutters (Ogunsanmi et al, 2002), African Giant Rat (Oyewale et al, 1998a), Pangolin (Oyewale et al, 1998), West African Dwarf (WAD) goats (Opara et al., 2010) and Girgentana goat (Piccione et al., 2010), but still lower than mountain reedbucks (Reduncula fulvorufula) (Vahala et al., 1991), wild grasscutters (Opara et al., 2006) and cape hunting dogs (Vahala et al., 1990). In West African Dwarf (WAD) goats, urea and creatinine levels are not influenced by diet. This result is also showing the difference between species in regard to catabolism of protein's cell (Oduye and Adadevoh, 1976), activity of glukoneogensis so the level of urea in wide variety (Radostits *et al*. (1994) and variation of dietary protein (Tedesco et al., 1991). In conclusion, the value of urea nitrogen and creatinin for Civet is may help when interpreting laboratory of renal function in civet.

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