CHRONIC RENAL FAILURE IN MULTIPLE SOUTHERN WHITE RHINOCEROS (*Ceratotherium simum simum*)

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Abstract

Chronic renal failure (CRF) was diagnosed in three aged (36-42 yr) and one young (9 yr) southern white rhinoceros (*Ceratotherium simum simum*) at Fossil Rim Wildlife Center. The aged rhinoceros had loss of body condition, lethargy, and decreased appetite. Clinicopathologic findings in these geriatric rhinoceros included azotemia, hypoalbuminemia, hyponatremia, hypochloremia, and hypophosphatemia; additionally, two of three older rhinoceros had hypercalcemia. Isosthenuria and proteinuria were present on the urinalysis. Fractional excretion of sodium was elevated compared to horse parameters, suggesting inadequate tubular function. While primary renal tubular disease was the most likely cause for the observed findings, eventual histopathologic findings from necropsy only confirmed end-stage kidney disease with no clear etiology in all three geriatric rhinoceros. The young rhinoceros was smaller than normal and initially presented with lethargy, decreased appetite, swollen limbs, and ulcerated lesions on the foot pads. Clinicopathologic findings suggesting renal disease were limited to severe proteinuria and hypoalbuminemia, consistent with glomerular disease. After clinical recovery from this initial episode, proteinuria continued. Thirty months after initial presentation, the rhinoceros again presented with lethargy and decreased appetite. Clinicopathologic changes indicative of CRF were present: azotemia, hypophosphatemia, hypercalcemia, hyponatremia and hypochloremia, in addition to continued hypoalbuminemia and proteinuria. Fractional excretion of sodium was elevated. Currently, this animal is maintaining body condition. These rhinoceros exhibited similar physical and biochemical changes to horses with CRF. Dietary reduction of calcium, oral supplementation of phosphorus, and provision of a higher calorie, more palatable diet resulted in temporary improvement in clinical signs and several clinicopathologic abnormalities.