

### *Protocol for chronic renal failure and protein-losing nephropathy*

It is often difficult to determine if the protein-losing nephropathy caused the CKD or vice versa. Treatment should focus on treating both to prolong life.

#### Recommended Diagnostics

- CBC/chemistry/urinalysis
- Blood pressure
- Urine culture
- UP:C ratio
- 4Dx testing and RMSF titers
- Leptospirosis urine PCR
- Lyme C6 test if Lyme positive

#### Treatment

- Subcutaneous fluids (50 ml/kg/day initially) 2-7 days per week. More frequent administration is recommended if creatinine >2.5 mg/dl.
  - Renal diet is very important to maintain phosphorus levels
  - Phosphate binder such as aluminum hydroxide (100 mg/kg/day PO, divided with food) to keep phosphorus <5 or 6 mg/dl.
  - Omeprazole 1 mg/kg PO BID to reduce uremic ulcers if creatinine >2.5 mg/dl
  - Aspirin at 1 mg/kg PO daily for protein-losing nephropathy
  - Omega 3 fatty acids for protein-losing nephropathy
  - If culture not affordable, amoxicillin trial for 4-6 weeks is recommended.
  - Consider 3 week trial of doxycycline for infectious causes of protein-losing nephropathy.
  - Benazepril 0.5 mg/kg daily for proteinuria. Will treat hypertension as well. Goal: UP:C <0.5 or at least 50% of starting value. May increase gradually to 2 mg/kg daily but recheck renal values 1 week after any dose increase.
  - Mirtazapine for appetite stimulation as needed
- Amlodipine (0.1-0.4 mg/kg PO daily-start at low end and do not increase without rechecking blood pressure) if systolic blood pressure >160 mmHg or if retinal lesions of hypertension. Monitor blood pressure every 1-2 weeks until systolic pressure <150 mmHg.

-If proteinuria worsens despite all above therapy, consider prednisone at 2 mg/kg/day and/or mycophenolate 10 mg/kg PO BID for 10-12 weeks before abandoning therapy. Monitor efficacy with UP:C's every 2-4 weeks. (Pooled sample from 3 days in a row). Warn owners of risk of worsening an undiagnosed condition, particularly infection, with steroids and discontinue immediately if patient worsens.