**CHRONIC KIDNEY DISEASE**

Chronic kidney disease is a common malady affecting older animals or, in less common cases, young dogs and cats with hereditary disorders or secondary to infection. Generally, once kidney function is lost, it cannot be restored. Treatment involves slowing progression of further nephron loss (the kidney units) and dealing with secondary complications. Although the kidneys have many functions, the two primary ones are removal of metabolic waste products and regulation of water balance. When 75% of normal function is lost, toxins start to build up and water is lost into the urine. Early signs of kidney disease may just be an increase in urine output and excessive drinking. More advanced disease includes signs of illness, such as loss of appetite, vomiting and lethargy.

 Treatment may depend on the stage of renal disease, which is classified according to buildup of toxins in the blood. Simple blood work measuring BUN and creatinine levels will give us the following stages of dysfunction:

Stage 1 = creatinine level of <1.4 in dogs and <1.6 in cats, and dilute urine

Stage 2 = creatinine level of 1.4 - 2.0 in dogs and 1.6 - 2.8 in cats

Stage 3 = creatinine level of 2.1 – 5.0 in dogs and 2.9 – 5.0 in cats

Stage 4 = creatinine level of >5.0 in dogs and cats

 The following treatments are available and again will depend on your pet’s stage and degree of complications. One of our doctors will outline a treatment protocol that is best for your pet.

* + **DIET-** Various prescriptionfoods are available to help slow progression of further renal functional loss and are the mainstay of early therapy. These foods (Prescription Diet K/D, Royal Canin Renal Support and others) are low in protein, phosphorous, and salt and high in Omega 3 fatty acids and non-protein calories.
	+ **FLUIDS-** Since water loss through increased urination is a constant battle, maintaining hydration is a must. Fluids also have a mild diuretic effect, helping to flush toxins. To increase water consumption, consider using canned foods, cat water fountains and dripping faucets plus numerous bowls of water in different locations. You may also offer other tasty liquids such as water from canned tuna or salmon and slam juice. Advanced renal disease will require injectable subcutaneous fluids regularly, either at our clinic or at home if you are willing to learn how.
	+ **ACE INHIBITORS-** This is a class of medication (Benazepril or Enalapril) used frequently in heart disease or high blood pressure. They may also have beneficial effects on kidney function, especially if a urinalysis shows excessive protein loss.
	+ **PHOSPHATE BINDERS-** A frequent complication of advanced renal disease is retention of phosphorous, which has been shown to further damaging to the kidney. Phosphorous binders are mixed with food and help prevent absorption from the diet.
	+ **CALCITRIOL-** One function of the kidneys is regulation of calcium/phosphorous balance, and an imbalance may result in increases of parathyroid hormone (PTH) levels. This may be somewhat toxic and can affect your pet’s appetite and general well-being. Calcitriol increases calcium levels and prevents the increase in PTH.
	+ **FAMOTIDINE (PEPCID)-** Kidneys produce a hormone called gastrin, which causes the stomach to produce acid. As kidneys fail, gastrin and stomach acid begins to rise. This results in a decreased appetite and occasional vomiting. Pepcid reduces stomach acid.
	+ **CYPROHEPTADINE-** If your pet’s appetite is decreased dramatically, this drug can help stimulate it.
	+ **POTASSUM-** Deficiencies in this electrolyte are common with renal failure and often needs supplementation.
	+ **AMLODIPINE-** Reduces blood pressure and may be indicated if your pet has elevated blood pressure secondary to kidney disease.
	+ **MONITORING-** Pet’s with chronic renal disease should be monitored on a regular basis depending on the level of dysfunction. Your doctor will recommend the frequency of rechecks.

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