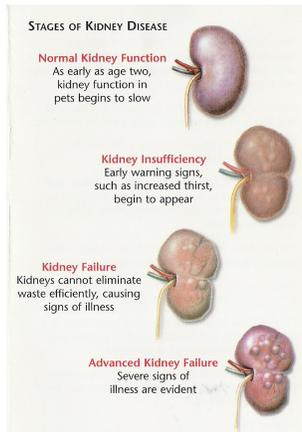




## CHRONIC KIDNEY DISEASE IN DOGS AND CATS: AN OVERVIEW

### What is chronic kidney disease?

To understand chronic kidney disease (also called chronic renal failure, or CRF), and what we can do in response, it is helpful to know a little about how the kidneys function. Each kidney is made up of



many individual working units, called *nephrons*, which help filter the body's protein waste products and adjust the concentration of the urine to help meet the body's fluid needs. Your pet has many more nephrons than it needs. It is felt that as much as 75% of the kidneys' tissue must be non-functional before *azotemia*, the accumulation of the normally filtered waste products in the bloodstream, develops. This state is reflected by a rise in the creatinine and BUN levels that we measure in the blood. Severe reductions in renal function may result in uremia, a crisis situation that affects many organ systems in addition to the kidneys.

Kidney disease is often classified as acute or chronic. Acute renal failure, often caused by exposure to toxic substances or by traumatic injury (among other reasons), usually has a sudden onset, and in some cases the damage to the kidneys may be reversible. Chronic renal failure often has a more insidious onset; however, pets with CRF may still appear to have a sudden onset of disease, because often the early signs are subtle and may go unnoticed.

### What are the signs of chronic kidney disease?

Signs of CRF often depend on the stage of the disease, the ability of the pet to compensate for the compromise in kidney function, and other health issues that may be concurrently happening. Early renal disease may produce no visible signs. Often the earliest sign may be a decrease in the ability to make adequately concentrated urine. Pet owners may notice a resulting increase in drinking and urinating as the first visible sign of disease. Note that several other diseases may present with the same signs, so that ***an increase in your pet's water consumption and/or urination is an indication to schedule an examination.*** As CRF progresses increases in blood creatinine and BUN become evident. If left untreated, the pet may proceed to a uremic crisis often accompanied by lethargy, depression, loss of appetite and vomiting as well as severe elevations of BUN, creatinine and phosphorous levels.

CRF affects many organ systems besides the kidneys. Uremia may produce ulcers in the stomach or sores in the mouth, which may become infected. Pets with CRF often become anemic as the disease progresses. CRF also may be associated with a rise in blood pressure which can affect the heart as well as the eyes. A decrease in potassium levels may result in weakness and/or lethargy. Other concurrent health conditions may either exacerbate or mask CRF.

### **Can chronic kidney disease be treated?**

While we cannot cure CRF, treatment plans are directed at making the pet comfortable and slowing the disease progression as much as possible:

- **First and foremost, ensuring that plenty of fresh water is always available and that accommodations are made for your pet's increased urination needs.**
- Your pet's diet and eating habits require special attention. Often special low protein diets are used in an attempt to lighten the protein waste product burden on an already compromised kidney, however, it is MUCH more important that your pet eat than it is for your pet to eat a special diet. Therefore, if your pet will only eat a specific food, continue to feed that diet.
- Some pets may benefit from phosphate binders and/or potassium supplementation to help control changes that may accompany CRF.
- Pets who cannot keep up with their increased fluid needs by drinking may need routine fluid supplementation. Many owners are able to learn how to give subcutaneous (under the skin) fluids on a regular basis; alternatively, our hospital staff can administer fluids.
- Some pets require medication to control elevations in blood pressure, which may result from CRF and /or other concurrent diseases.

Routine monitoring of blood and urine values as well as blood pressure values help us follow along your pet's status. Pets that present in a uremic state usually need more intensive treatment that may involve hospitalization for several days of intravenous fluids.

### **What do I need to do for *my* pet with chronic kidney disease?**

Treating CRF presents several challenges, as variations in severity, invasiveness and costs of the different treatment options make each case different from all others. Additionally, CRF is a problem where we cannot accurately predict the effectiveness of any single individual treatment option in managing the effects of CRF or slowing the process of loss of kidney function. While some pets may go for years without problems, others may deteriorate rapidly despite all that we do. Lastly, while some pets are fairly tolerant of treatments and medications involved in the ongoing management of CRF, others become resentful of continued daily medication administration, making management of these cases more challenging.

### **The bottom line:**

Our overall goal in managing CRF is to choose those medications and treatments that will help slow the loss of kidney function with as little loss of quality of life for pet and owner. Prescription diets and/or medications are designed to help prevent problems commonly seen with CRF **before** they occur, as well as to counteract CRF effects in those cases where they do occur. Periodic lab tests help us monitor your pet's kidney function as well as identify other conditions that may adversely affect kidney function, allowing us to adjust treatments as needed.

No matter how conservatively or aggressively we approach treating your pet's kidney disease, it is important to pay close attention to his/her overall attitude and condition. For example, quick intervention with outpatient fluid therapy as soon your pet's appetite seems "off" (rather than waiting a few days to see if it will pass) may often eliminate the need for more intensive hospitalization for intravenous fluids.

In summary, chronic renal disease is a condition that affects many systems in addition to the kidneys. Together we can work out a treatment plan that will maximize your pet's quality of life for as long as possible.