

## **Renal Failure**

The kidneys normally filter the blood, cleansing it of waste products, toxins, and other substances. They maintain the correct balance of water and electrolytes, help regulate blood pressure, and keep the blood pH at the right level. Unfortunately, failure of the kidneys is one of the most common diseases of dogs. In this condition, the functional tissue of the kidneys is damaged, leaving them unable to filter the blood adequately. Toxins build up within the body, a condition known as azotemia.

### **Acute Renal Failure (ARF)**

Acute Renal Failure means that the kidneys are damaged suddenly. This is usually caused by poisoning or a lack of blood flow. Poisons that can cause ARF are ethylene glycol (antifreeze); heavy metals such as zinc and lead; and large doses of certain antibiotics, acetaminophen, and chemotherapy drugs. Inadequate blood flow can be caused by shock, hemorrhage, low blood pressure, or dehydration. Infectious illnesses like Leptospirosis can also cause ARF.

Signs of acute renal failure are not very specific. Loss of appetite, vomiting and diarrhea or dehydration may be seen. Some pets with ARF urinate excessively while others stop urinating altogether. Information on the pet's recent experiences is crucial in diagnosis of ARF. Once the veterinarian suspects kidney disease, blood and urine tests are used to determine the cause and the severity of the condition.

Animals with ARF are treated with IV fluids. Additional medications are used to correct electrolyte and pH imbalances and to reduce symptoms. Specific treatment for the original cause of the kidney damage is given if the cause is known. Healing can occur in tissues that are merely damaged, and viable parts of the kidneys will work harder to compensate. Unfortunately, the portions of the kidneys that have been destroyed will not recover.

Pet owners can do several things to reduce the chance of ARF. Keep antifreeze away from pets, and clean up spills immediately. Follow medication dosage instructions, and never give people medicine to pets without first consulting your veterinarian. Make sure that pets, especially older ones, always have access to fresh water.

### **Chronic Renal Failure (CRF)**

Chronic Renal Failure is seen most often in pets over eight years of age. CRF occurs when the functional structures of the kidneys wear out. The damage happens gradually, so months or years may pass before symptoms appear. As much as 75% of the kidney tissue may be destroyed by that time.

Like ARF, symptoms of CRF can be vague. Early signs include loss of appetite, weight loss, vomiting, diarrhea, constipation, and sores in the mouth. As the illness progresses, animals drink more water, urinate more, and may have urinary accidents in the house. Eventually, toxin buildup and electrolyte imbalances can damage the nervous system and the eyes, causing seizures, coma and blindness. Many animals with CRF become anemic, because the kidneys are

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also responsible for stimulating production of new blood cells. The veterinarian will perform blood and urine tests to confirm a diagnosis of CRF and to assess the severity of symptoms. CRF is a progressive, irreversible disease. Treatment is aimed at slowing the rate of damage and minimizing symptoms. Diets for pets with CRF usually contain restricted amounts of high quality protein and are low in minerals. Many pets require supplemental fluids given periodically under the skin or intravenously. Medications are given to manage nausea, correct electrolyte and pH imbalances, control high blood pressure, and stimulate blood cell production.

The newest treatments available for pets with CRF are hemodialysis and kidney transplantation. These procedures are very costly and are only available at certain veterinary teaching hospitals and specialty practices. Hemodialysis is used as a temporary, emergency method for cleansing the blood. Transplantation can extend a pet's life for two or more years. Kidney transplants are complex surgeries with a high rate of success. Pets that receive transplants must remain on anti-rejection medicine for life. Regardless of the type of treatment, the goal is to maintain the pet's quality of life. When this is no longer possible, euthanasia may be considered.

Chronic Renal Failure is not preventable. Although some have suggested that low protein diets might have a protective benefit for animals with healthy kidneys, scientific research does not support this belief.

