

Canine Chronic Renal Failure

Kidney failure, renal insufficiency

Affected Animals:

Chronic renal failure may affect dogs of any breed, sex, and age. The mean age for chronic renal failure in dogs is seven years. Hereditary chronic renal failure is known to occur in the following breeds: basenji, beagle, bull terrier, Cairn terrier, chow, cocker spaniel, Doberman pinscher, German shepherd, Lhasa apso, miniature schnauzer, Norwegian elkhound, rottweiler, samoyed, Chinese shar pei, Shih tzu, soft-coated wheaten terrier, and standard poodle.

Overview:

Chronic renal failure, or CRF, is a serious disease usually seen in older dogs. The most commonly observed signs of this disease are polydipsia, or increased water intake, and polyuria, or frequent urination.

Chronic renal failure usually is caused by the normal aging process, due to the declining function of the kidneys with time. The most common signs of chronic renal failure, increased water intake and frequent urination, are attempts by the body to compensate for a loss of kidney function by flushing out waste products that have accumulated in the bloodstream.

Because chronic renal failure is progressive and irreversible, prognosis for dogs with this disease is poor. While treatment rarely improves the renal function of dogs with chronic renal failure, it may alleviate symptoms and make the dog more comfortable. Dogs with this disease may live for a period ranging from months to years.

Clinical Signs:

The most commonly observed signs of chronic renal failure are polydipsia, or increased water intake, and polyuria, or frequent urination. Other signs may include lethargy, anorexia, weight loss, vomiting, diarrhea, gastrointestinal ulcerations and bad breath, weakness, and exercise intolerance, or the inability to exercise normally without tiring. If present in conjunction with hypertension, or high blood pressure, chronic renal failure may lead to acute blindness.

Symptoms:

See Clinical Signs.

Description:

Chronic renal failure is a disorder caused by the gradual failure of the kidneys or by the long-term consequences of severe acute renal failure. The kidneys have several life-sustaining functions that include excretion, fluid conservation, and endocrine processes. Kidneys filter waste products from the bloodstream so that they may be excreted from the body in the urine. Kidneys also produce hormones, including erythropoietin, which stimulates the bone marrow to produce new red blood cells.

The symptoms of chronic renal failure usually occur only after seventy-five percent of a dog's total kidney mass has become dysfunctional. The most common signs of chronic renal failure, increased water intake and frequent urination, are attempts by the body to compensate for a loss of kidney function by flushing out waste products that have accumulated in the bloodstream.

The most common cause of chronic renal failure is the normal aging process, in which the dog gradually loses kidney function. Because the disease is progressive and irreversible, dogs with chronic renal failure have a poor prognosis. The primary goal for treatment of this disease is the alleviation of symptoms that compromise an animal's quality of life. Depending on how quickly the disease progresses, dogs with chronic renal failure may live anywhere from weeks to years.

Diagnosis:

A veterinarian will first identify and correct any active renal disease that may exacerbate or mask chronic renal failure. A diagnosis of chronic renal failure requires a physical exam and various laboratory tests. A physical exam of a dog with this disease commonly will reveal dehydration, small and irregular kidneys, cachexia or severe weight loss, pale mucous membranes or gingiva, oral ulcers, and uremic breath odor. Laboratory tests initially may include a CBC, or complete blood count, blood chemistry analysis, and urinalysis. Other tests that may be recommended in order to diagnose completely the cause of the disease include a urine culture, x-rays, ultrasound, blood pressure measurement, and biopsy. Some of these tests may require referral to a specialist of veterinary internal medicine.

Prognosis:

The prognosis of a dog first diagnosed with chronic renal failure depends on the severity of the disease. For some dogs, symptoms already may be so severe that the disease is irreversible even with aggressive treatment. Regardless of the severity, because chronic renal failure is progressive and irreversible, dogs with this disease have a poor prognosis, and may live anywhere from months to years.

Transmission or Cause:

Most cases of chronic renal failure are idiopathic, or have no specific cause beyond the normal aging process of the dog. In some cases, the following

conditions are known to cause chronic renal failure: hereditary and congenital renal disease; nephrotoxins, or kidney toxins; hypercalcemia, or high blood calcium; glomerulonephritis, or inflammation of the internal structures of the kidney; pyelonephritis, or kidney infection; polycystic kidney disease; nephroliths, or kidney stones; chronic urinary obstruction; certain medications; and lymphoma, a kind of cancer.

Treatment:

Dogs diagnosed with less severe chronic renal failure may be treated at home with medications and dietary changes. A veterinarian usually will prescribe a prescription dog food, which has lower levels of protein, phosphorous, and sodium than regular food and hence reduces the workload on the kidneys. Dogs with chronic renal failure should have fresh water available to them at all times. Medications may be prescribed in order to control nausea, inappetence, mineral and electrolyte imbalances, hormonal deficiencies, and high blood pressure.

Dogs diagnosed with moderate to severe chronic renal failure may require subcutaneous fluid therapy, along with follow-up monitoring by a veterinarian on a regular basis. The frequency of these visits will depend on the severity of the dog's disease and its response to treatment.

Dogs with severe chronic renal failure will require treatment in a hospital with intravenous fluids, nutritional support, and medications. Laboratory values are monitored for indications of improvement during the hospitalization.

Complications associated with chronic renal failure include uremic stomatitis, or ulcer formation in the mouth; gastroenteritis, or inflammation and ulceration of the stomach and intestines; anemia, or a lower-than-normal number of red blood cells; urinary tract infections; and systemic hypertension, or high blood pressure. The combination of chronic renal failure and hypertension may lead to acute blindness.

Prevention:

Dogs believed to have hereditary renal disease should not be bred. Owners of aging dogs should watch for signs of renal disease in their pets and seek veterinary care early on.