

CHRONIC KIDNEY FAILURE

What is meant by the term "Chronic Kidney Failure"?

The term "chronic kidney failure" suggests that the kidneys have stopped functioning and are, therefore, not making urine. However, by definition, kidney failure is the inability of the kidneys to remove waste products from the blood. This definition can occasionally create confusion because some will equate kidney failure with failure to make urine. Kidney failure is NOT the inability to make urine. Ironically, most pets in kidney failure are actually producing large quantities of urine, but the body's wastes are not being effectively eliminated.

When is this likely to happen in my pet?

The typical form of chronic kidney failure is the result of ageing; it is simply a "wearing out" process. The age of onset is related to the size of the pet. For most small pets, the early signs occur at about 10-14 years of age. However, large pets have a shorter age span and may go into kidney failure as early as 7 years of age. In some breeds there is a genetic predisposition to kidney failure.

What changes are likely to occur in my pet?

The kidneys are nothing more than filters. When ageing causes the filtration process to become inefficient and ineffective, blood flow to the kidneys is increased in an attempt to increase filtration. This results in the production of more urine. To keep the pet from becoming dehydrated due to increased fluid loss in the urine, thirst is increased; this results in more water consumption. Thus, the early clinical signs of kidney failure are increased water consumption and increased urine production. The clinical signs of more advanced kidney failure include loss of appetite, depression, vomiting, diarrhoea, and very bad breath. Occasionally, ulcers will be found in the mouth. When kidney failure is accompanied by these clinical signs, it is called uraemia.

How is chronic kidney failure diagnosed?

The diagnosis of kidney failure is made by determining the level of either of two waste products in the blood: blood urea and/or blood creatinine and by confirming a concurrent inability to modify urine concentration.

Although urea and creatinine levels reflect kidney failure, they do not predict it. A pet with marginal kidney function may have normal blood levels. If that pet is stressed with major illness or surgery, the kidneys may fail, sending the urea and creatinine values up quickly.

Since this is basically just a wearing out process, can it be treated with anything other than a kidney transplant?

In some cases, the kidneys are worn out so that they cannot be revived. However, with appropriate treatment some pets will live for several more months or years.

Treatment occurs in two phases. The first phase is to "restart" the kidneys. Large quantities of intravenous fluids are given to "flush out" the kidneys. This flushing process, called diuresis, helps to stimulate the kidney cells to function again. If enough functional kidney cells remain, they may be able to adequately meet the body's needs for waste removal. Fluid therapy includes replacement of various electrolytes, especially potassium. Other important aspects of initial treatment include proper nutrition and drugs to control vomiting and diarrhoea.

What can I expect from this phase of treatment?

There are three possible outcomes from the first phase of treatment:

1. The kidneys will resume functioning and continue to function for a few weeks to a few years.
2. The kidneys will resume functioning during treatment but fail again as soon as treatment stops.
3. Kidney function will not return. Unfortunately, there are no reliable tests that will predict the outcome.

If the first phase of treatment is successful, what happens next?

The second phase of treatment is to keep the kidneys functioning as long as possible.

This is accomplished with one or more of the following, depending on the situation:

1. A low protein diet. This helps to keep the blood tests as close to normal as possible, which usually makes your pet feel better. Also, once kidney disease is advanced, a decreased protein diet may decrease the workload on the kidneys. There are a variety of commercially prepared foods that have the

quantity and quality of protein needed by your pet.

2. A phosphate binder. Phosphorous is removed from the body by filtering through the kidneys. Once the filtration process is impaired, phosphorous begins to accumulate in the blood. This also contributes to lethargy and poor appetite. Certain drugs will bind excess phosphates in the intestinal tract so they are not absorbed, resulting in lower blood levels of phosphorus.
3. A drug to regulate the parathyroid gland and calcium levels. Calcium and phosphorus must remain at about a 2:1 ratio in the blood. The increase in blood phosphorus level, as mentioned above, stimulates the parathyroid gland to increase the blood calcium level by removing it from bones. This can be helpful for the sake of the normalising calcium:phosphorus ratio, but it can make the bones brittle and easily broken. Calcitriol can be used to reduce the function of the parathyroid gland and to increase calcium absorption from the intestinal tract. This is recommended if there is evidence of abnormal function of the parathyroid gland.

A drug to stimulate the bone marrow to produce new red blood cells. The kidneys produce erythropoietin, a hormone that stimulates the bone marrow to make red blood cells. Therefore, many pets in kidney failure have a low red blood cell count, or anaemia.

How long can I expect my pet to live?

The prognosis is quite variable depending on response to the initial stage of treatment, your ability to perform the follow-up care and your pet's willingness to eat the special diet. Treatment can be effective. Many pets will have a good quality of life for months or even years.