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Kidney Failure

The term "chronic kidney failure" suggests that the kidneys have quit working 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; it is the inability of the kidneys to remove toxic and waste products from the blood. Ironically, most animals in kidney failure are actually producing large quantities of urine, but the body's wastes are not being effectively eliminated.

What causes kidney failure?

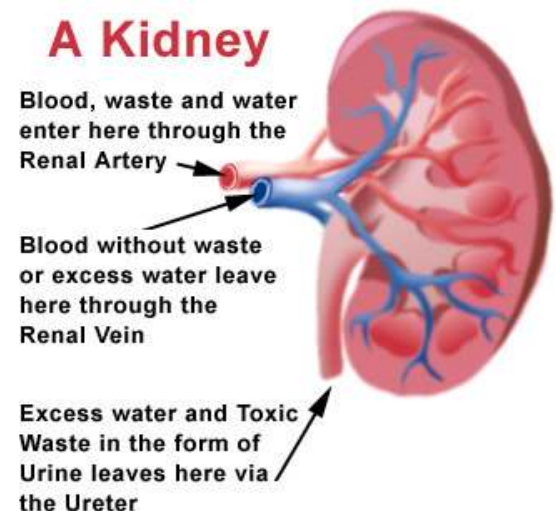
The most common form of chronic kidney failure is the result of aging. It is simply a "wearing out" process and it is a very common illness in older cats & dogs with the early signs usually showing between 8-14 years of age. Chronic kidney failure can also be the end result of infections or toxins damaging the kidneys. Animals can be born with congenital kidney disease – this may affect very young animals.

How does it affect my pet?

The kidneys are essentially filters through which the blood flows for cleansing. When disease or aging 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 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 **weight loss, loss of appetite, depression, vomiting, diarrhea, and very bad breath**.

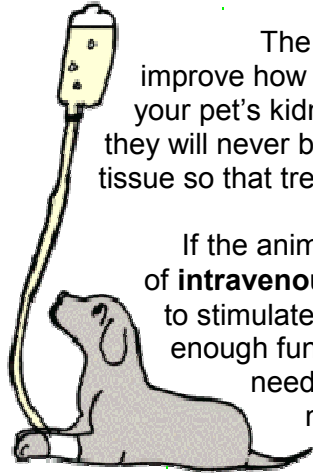
How is the diagnosis made?

The diagnosis of kidney failure is made by determining the level of two waste products in the blood: blood urea nitrogen (BUN) and blood creatinine. A urinalysis is also needed to complete the study of kidney function. Because the kidneys also produce the hormone that induces the bone marrow to make red blood cells, these animals will also be anemic.



Although BUN and creatinine levels reflect kidney failure, they do not predict what will happen tomorrow or next week. An animal with marginal kidney function may have normal blood tests. If they are stressed with major illness or surgery, the kidneys may fail, sending the blood test values up quickly.

How is kidney failure treated?



The goal of treatment is to decrease the toxin level in the bloodstream, which will improve how the pet feels overall and help increase the appetite. We must recognize that your pet's kidneys have reached this point due to long-standing disease or aging; therefore, they will never be normal again. However, many animals still have enough functional kidney tissue so that treatment will help them to compensate for awhile.

If the animal is dehydrated and off food the first stage of treatment involves large quantities of **intravenous fluids** to "flush out" the kidneys. This flushing process, called diuresis, helps to stimulate the kidney cells to function again and lower the urea level in the bloodstream. If enough functional kidney cells remain, they may be able to adequately meet the body's needs for waste removal. Other important aspects of initial treatment include proper nutrition and drugs to control vomiting and diarrhea.

Home treatment involves a **prescription diet** to help reduce the levels of toxins/urea in the body. Diets that are formulated for kidney failure are low in protein, lower in phosphates and are non-acidifying. These factors help to lower the amount of protein waste in the blood, control excessive phosphate buildup, and reduce pH imbalances; together they usually make your pet feel better.



In cats we sometimes use medication to stimulate the appetite as well, although it may cause sedation.

A heart medication, **Forteker (Benazepril)**, has been shown to improve kidney blood flow and kidney function, and is the most common medication pets with kidney failure are placed on. It is given once daily and has very few side-effects.

Other Treatment Options

These are less commonly used and some are quite expensive. Bloodwork monitoring is required for some

Fluids at home:

Extra fluids to help flush toxins and maintain good hydration can be given subcutaneously (under the skin) at home. Most owners are a bit nervous of this at first but learn quickly. It involves inserting a needle under the skin that is attached to an IV line & allowing fluids to run in. It can be done once or twice a week or daily, depending on the needs of the pet. There is no way to harm your pet in doing this, but some pets tolerate it better than others. This would be more helpful in cats & small dogs, due to the sheer volume of fluids a larger dog would require.

Potassium supplementation:

Used if bloodwork indicates that potassium levels are low. Potassium is lost in the urine when urine production becomes excessive. A potassium supplement will replace that loss.

A drug for excess stomach acid:

Evidence indicates that excess stomach acid causes nausea and is therefore harmful to your pet's appetite. Drugs with this action are usually



given only if appetite is improved while they are administered. Choices include Pepsid, Zantac or prescription drugs. Your veterinarian can provide proper dosages.

A phosphate binder:

One of the secondary things that occurs in kidney failure is an elevation of the blood's level of phosphorus. 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. If the special diet is not successful in maintaining normal phosphate levels in the blood, a phosphate binder is used.

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 animals in kidney failure have a low red blood cell count (anemia). When give in a synthetic form it will correct the anemia. This medication is expensive & not readily available.

How long can I expect my pet to have a good quality life?

The prognosis is quite variable depending on response to the treatment, the type of kidney disease and its progression. Overall, the better the animal eats and maintains its weight, the better they do. Some pets are very sick when first diagnosed & a good quality of life is never achieved, others can do well for weeks, months or years depending on the individual.

Is kidney transplantation possible?



This procedure is being done on pets (primarily cats) at a few selected locations in the United States. Generally, the pet must still be in good condition and not ill from the kidney failure in order to be accepted for a transplant. Also, many transplant centers require that the owner adopt the animal which has donated a kidney for the procedure.

This procedure is not for everyone. The cost is often prohibitive and multiple medications must be given daily for the duration of the pet's life. Repeated blood tests are required to monitor function of the transplanted kidney and to monitor blood levels of the anti-rejection drug. Also, the anti-rejection drug is expensive. But, it is truly a cure for kidney failure.