

Home care of cats with renal disease

Sarah M. A. Caney

Chronic renal insufficiency (CRI) or renal failure (CRF) is one of the most common diagnoses made in clinical practice. In recent years there have been many advances in treatment options and long-term home care can be very rewarding for vet, owner and cat.

In general, treatment falls into two main categories:

1. Identification and treatment of any underlying cause (where possible) – for example renal lymphoma, bacterial pyelonephritis. Although existing damage often cannot be reversed, treatment of the underlying cause helps to stop continued progression.
2. Prevention, identification and treatment of complications associated with the renal disease. Normal kidneys are responsible for many functions including regulation of hydration, acid-base balance and electrolyte status so the list of potential complications is very long!

Dietary management is the single most beneficial treatment for cats with renal disease. Several studies have now shown that those cats, with renal failure, that will eat these diets will live much longer, healthier lives. Renal



1. Blood pressure measurement should be regularly assessed in renal failure patients.

diets are modified in many ways to assist cats with renal failure – for example they contain:

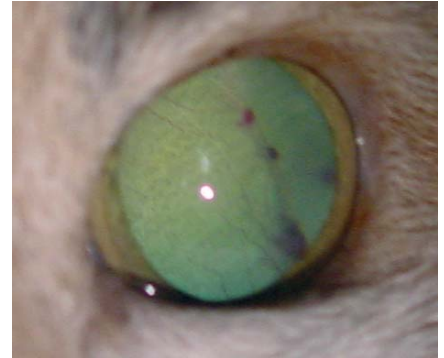
- Restricted levels of high quality protein which helps to reduce the azotaemia and hence symptomatically reduce the risk of uraemic signs;
- Restricted levels of phosphate which reduces the risk of hyperphosphataemia and renal secondary hyperparathyroidism;
- Increased amounts of potassium and B vitamins which CRI cats are vulnerable to losing in their urine;
- Increased numbers of calories which helps CRI cats, with a poor appetite, to maintain a normal body weight;
- Reduced levels of sodium which may help to reduce the risk of systemic hypertension.

ACE inhibitors such as benazepril (Fortekor®, Novartis) have recently been advocated for the treatment of cats with CRI. Data from clinical trials suggests that cats receiving this therapy have a better quality of life (as assessed by their owners), better appetite, a reduction in the amount of protein they lose in their urine and slightly better survival times. ACE inhibitors also lower the blood pressure and so may be prescribed as anti-hypertensive therapy. Fortekor should only be used in clinically stable, normally hydrated cats at a dose of 0.5 – 1.0 mg/kg once a day.

Management of common complications of renal disease

1. *Uraemic signs* eg poor appetite, gastritis/gastric ulceration.

Symptomatic treatment in the form of appetite stimulants (eg the anti-histamine cyproheptadine: 1-2 mg per cat once daily), antacids (eg famotidine 1 mg/kg/day) and mucosal protectants (eg sucralfate 250 g/cat twice daily) can be very helpful. In those cats that are bright and relative-



2. Cats with systemic hypertension may be presented with a history of sudden onset blindness due to retinal detachment. In this example, the pupil is dilated, blood vessels and areas of haemorrhage can be seen on the detached retina.

ly well but where appetite remains poor, another option is to place an oesophagostomy or gastrostomy feeding tube. These tubes can be used for prolonged periods to administer food, liquids and medicines to the cat.

2. *Dehydration* is common in spite of the polydipsia that often accompanies renal failure. Home care tactics to prevent this include feeding moist foods, adding water to the food, offering tasty liquids (eg water that has been used to poach some fish), water fountains and so on. In those patients that still remain vulnerable to bouts of dehydration, it can be helpful to train owners to administer fluids subcutaneously with the cat at home (eg lactated Ringers solution, 50 – 150 ml daily or on alternate days according to the cat's needs). The aim of subcutaneous fluid therapy is to maintain normal hydration and not to diurese an azotaemic cat.

3. *Electrolyte problems*

most commonly hyperphosphataemia, hypokalaemia. Renal diets help to prevent development of these complications but additional therapy is indicated in those cats that develop problems in spite of this. In sick cats this often involves intravenous fluid

3. Feeding tubes can be very helpful for supporting cats with persistently poor appetites: oesophagostomy tube / gastrostomy tube



therapy (to reduce blood phosphate and/or use as a vehicle for potassium supplementation). Oral phosphate binders (eg aluminium hydroxide, calcium carbonate) should be given, mixed with food, to counter hyperphosphataemia. Potassium gluconate (1-4 mmol twice daily according to the patient's needs) is the oral potassium supplement of choice since it causes least gastric irritation. A variety of oral supplements are available in liquid, tablet and powder form.

4. *Systemic hypertension*: It is essential to evaluate blood pressure in all cats diagnosed with renal insufficiency as a significant proportion of patients (estimated to be at least 20%) will be suffering from systemic hypertension. Blood pressure can be measured but if this is not possible then the eyes should be assessed thoroughly to look for clues of hypertension such as retinal oedema, haemorrhage and retinal detachment. Systemic hypertension is an extremely serious condition and can cause blindness, neurological signs including seizures, cardiac changes and



4. Home subcutaneous fluid therapy is helpful in maintaining hydration in those cats vulnerable to dehydration



renal damage. Most affected cats can be managed well with either oral amlodipine (0.625-1.25 mg per cat per day), oral benazepril (0.5 – 1.0 mg/kg once daily) or both drugs in combination.

5. *Metabolic acidosis*. Metabolic acidosis is not uncommon and contributes to many of the clinical signs of uraemia. Dietary management helps to reduce the incidence of this although a small number of cats will require further treatment. If total CO₂ (TCO₂) concentrations (or bicarbonate levels) are <15mmol/L, oral sodium bicarbonate therapy should be considered. This should be administered at an initial dose of 5 – 10mg/kg two to three times daily to maintain TCO₂ between 18 and 23 mmol/L.

6. *Anaemia*. Hormone therapy with either androgenic steroids or recombinant human erythropoietin are the most widely used treatments for anaemia of CRF. However, in some cats, iron deficiency can contribute to the anaemia both through inadequate dietary intake and gastro-intestinal blood loss. Ferrous sulphate (50 - 100 mg daily), sucralfate and/or H₂-receptor antagonists such as famotidine can be helpful in these patients.



5. Severe hypokalaemia is associated with muscle weakness as shown in this picture.

7. *Urinary tract infections*

Recent studies showed that cats with CRF are more vulnerable to bacterial urinary tract infections – probably since the urine they are producing is so dilute. Bacterial cystitis may pose a risk of ascending infection and pyelonephritis or may represent bacterial seeding of the urine from pre-existing pyelonephritis. In many cases the bacterial infection does not cause signs of cystitis (such as dysuria, pollakiuria etc) which means that collection and analysis of a urine sample are required to diagnose this complication.

Check-ups

Monitoring visits are very important to ensure that owners are supported and that clinical problems are identified and treated promptly. The required frequency of check-ups varies according to the patient's needs but should initially be at least once a month. All check-ups should include weighing the patient and assessing for clinical problems (such as dehydration). Blood pressure and laboratory monitoring should be checked according to the patient's needs.

The longterm outlook for cats with CRI is very variable ranging from a few weeks post diagnosis to many years. CRI is believed to be a progressive condition in most, if not all, cats although the rate of progression may vary considerably according to the cause of the disease and other individual factors. For example, cats with anaemia caused by CRI often have a very poor long term prognosis as this is difficult to treat effectively for long periods of time. Care of affected cats at home can be very rewarding as well as helpful in ensuring that CRI patients have the best quality of life for as long as possible.

Useful websites for clients include:

- <http://www.fabcats.org/kidney.html>
- <http://www.felinegood.co.uk/>
- <http://www.felinecrf.com/>

**Sarah M. A. Caney BVSc PhD
DSAM(Feline) MRCVS
RCVS Specialist in Feline Medicine
Member of FAB feline expert panel**