

Managing feline chronic kidney disease in practice

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Chronic kidney disease (CKD) is a common diagnosis in cats presented to first opinion practices and renal disease is the most common cause of mortality in cats of more than five years of age (O'Neill et al, 2015).



Figure 1. Every cat entering the clinic should have a weight and body condition score recorded. Slight weight loss may be the only indication of underlying CKD.

General practitioners are familiar with the management of this condition, but given the prevalence and research, the treatment of CKD is worthy of review to ensure we are doing all we can to maximise the length and quality of life in affected cats.

The International Society of Feline Medicine (ISFM) has produced international guidelines on the management of CKD and the *Journal of Feline Medicine and Surgery* has published guidelines offering a consensus of opinion from international experts (Sparkes et al, 2016).

This article will discuss developments in diagnosis, what treatments make a difference to affected cats and how to apply them optimally in a busy, first opinion practice. Part two will cover the management of complications of CKD, including proteinuria and urinary tract infections.

Diagnosis of CKD

Classic clinical signs of CKD include polyuria and polydipsia, inappetence, vomiting and weight loss. However, as a species, cats are masters of hiding disease and owners may attribute vague

and non-specific signs to ageing.

The challenge is diagnosing CKD before a cat is in poor clinical condition and the disease is advanced. This means more opportunities to intervene and prolong the cat's life, as well as improving the quality of life. As a practice, can you review how you could identify and test older cats for CKD, and other common diseases associated with ageing, to allow an early diagnosis and avoid missed treatment opportunities?

A diagnosis of CKD is made in the majority of cases when azotaemia is detected in combination with a reduced urine specific gravity (USG; less than 1.035).

However, creatinine and urea are affected by non-renal factors (such as hydration, muscle mass and feeding) and should be interpreted accordingly. They are also insensitive indicators of a reduced glomerular filtration rate (GFR), increasing after the loss of around 75% of renal function.

Measurement of GFR is routine in humans, but not performed as simply in cats and rarely indicated. In some cases, early in the course of the disease, a loss of concentrating ability may occur in advance of the development of azotaemia and cats will occasionally maintain concentrating ability despite having renal disease.

Whatever their limitations, none of these abnormalities will be detected if you are not looking for them. Early diagnosis is desirable to allow interventions to prevent further renal damage, slow progression and manage complications of CKD.

Maximising the chance of an early CKD diagnosis

Getting cats through the practice door

- A senior cat health clinic targeting cats aged above eight should aim to see them more frequently. International Cat Care WellCat guidelines recommend examining older cats every 6 to 12 months. These clinics need motivated staff to run them and follow-up with owners and must also not be overpriced or, preferably, provided free. Here, you will find abnormalities needing further work and, therefore, income.
- Create promotions and initiatives to raise awareness among clients of diseases of older cats and encourage them to bring older cats for health checks. Make the most of social media and email to educate your clients.
- Implement Cat Friendly Clinic principles in your practice to encourage owners to attend; for example, cat-only consulting periods, senior health clinics at quiet times of the day with longer consultation times and nurse-led clinics. Do not let "my cat hates the vet" prevent you from treating your patients; you can change things and make a difference. Visit www.catfriendlyclinic.org for more information.

In the consulting room



Figure 2. Systolic blood pressure measurement should be part of the clinical examination of older cats.

- Take a thorough history. The clinical signs of CKD can be vague, so ask the right questions as signs of illness may be subtle, such as sleeping more, inappropriate urination, inappetence and what owners perceive as “getting old”.
- Weigh every cat during all consultations. Weight and body condition scores are an essential part of a physical examination and allow you to identify small losses indicating ill-health (**Figure 1**).
- Measure blood pressure in all older cats. At least 20% of cats with CKD will be hypertensive, and checking systolic blood pressure is recommended for all cats of eight or older at least once a year and more frequently as they age (**Figure 2**).

In the practice or external laboratory

- Information gained from simple, inexpensive urinalysis in older cats is invaluable. Measurement of USG (less than 1.035) allows confirmation of a diagnosis of CKD (alongside blood testing) and dipstick testing can exclude other causes of a low SG, such as diabetes mellitus. Urinalysis may also indicate complications of CKD, such as proteinuria (confirm and quantify with urine protein:creatinine ratio), and urinary tract infection. Owners can be provided with non-absorbent litter prior to their appointment (**Figure 3**) or cystocentesis performed.
- Blood testing should be considered in older cats yearly, or twice a year, as they age. As many cats with CKD may show no clinical signs, routine blood testing can allow an early diagnosis, as well as detection of complications and opportunities to intervene and treat, such as hyperphosphataemia, hypokalaemia and anaemia.

- Specific blood testing for CKD – the measurement of GFR is possible from general practice, but rarely indicated.
- Novel markers for CKD – Symmetric dimethylarginine (SDMA) correlates with GFR and may be elevated prior to the development of azotaemia.



Figure 3. Urine samples provide important information in older cats, and are low cost and easy to obtain in most cases.

Once a diagnosis of CKD is made, the cat should be staged according to the International Renal Interest Society (IRIS) staging system.

SDMA developments

SDMA is a methylated arginine amino acid produced as a result of proteolysis. It is excreted by the kidneys and correlates with GFR in cats (Braff et al, 2014). Studies have demonstrated its utility as a biomarker for CKD, increasing earlier than creatinine and not affected by muscle mass (Hall et al, 2014).

As SDMA correlates with GFR, it increases in cases with prerenal and postrenal azotaemia, and further study is required to assess its utility; for example, in cases of acute kidney injury. It is worth considering whether this test could be used to assess older cats for CKD prior to the development of azotaemia in your clinic, perhaps pre-anaesthesia or in senior cat clinics.

Importantly, it can be used to identify cats that should be monitored for the development of CKD.

IRIS has guidance on the interpretation of SDMA results summarised as:

- SDMA concentrations in blood (plasma or serum) persistently above 14µg/dl in cats with normal creatinine may be a reason to consider the cat as IRIS stage 1 (renal abnormality, but creatinine within the reference interval).

- SDMA measurement may avoid the underestimation of renal dysfunction in cats with poor muscle mass, preventing them being classified as a lower stage and missing out on advised treatments for cats in higher stages.

For more information, visit www.iris-kidney.com

Management of CKD

Once a diagnosis of CKD is made, the goals of treatment are to prevent progression of the renal disease and maintain a good quality of life by minimising complications and clinical signs.

Initial work-up for treatable underlying causes is recommended (such as lymphoma, pyelonephritis and urolithiasis), but the majority of cats will have chronic tubulointerstitial nephritis with no known aetiology.

Importance of diet

Renal diets are restricted in protein and phosphate, supplemented with potassium, B vitamins and omega-3 fatty acids. Certainly, it is simple to send a client home with a bag of renal prescription diet, but communicating to clients the importance of a renal diet in slowing the progression of CKD is vital to compliance.

To many vets and owners, a diet is not seen as a “treatment”, when it has been shown to prolong life and reduce episodes of uraemia in cats with CKD (Elliot et al, 2000; Ross et al, 2006).



Figure 4. Diet is the best thing to treat cats with CKD.

Despite this compelling evidence, a recent study of 1,089 cats with CKD showed only 51% were fed a veterinary therapeutic diet as some component of a diet (Markovich et al, 2015). In the same study, 43% of owners reported their cats had an abnormal appetite. Are we missing an opportunity to maximise use of the best therapy we have (**Figure 4**)?

The way a diet is introduced can make a big difference to acceptance by the cat. **Panel 1** lists ways to smooth the transition to a renal diet. Food is likely more expensive than owners' usual brands, and they need to understand why.

Many owners would be happier paying for tablets than a bag of prescription diet, but CKD is one disease where we need to explain the difference a diet can make. We also need to tell them how much they should be feeding and monitor the cat's intake.

Do owners leave your practice knowing how much of a diet in grams their cat should be eating? Do you follow-up later with a telephone call or email to see how the transition is going and if you can offer more advice? There are other ways to support the client here and, given the importance of diet, this is worthy of thought.

The benefits of a renal diet do not mean maintenance of calorie requirements comes second. If a cat refuses the diet, or eats an inadequate amount despite efforts described in **Panel 1**, then feeding a part of the diet may still be helpful. Senior diets often have reduced protein and phosphate content, but blood phosphate should be monitored and phosphate binders used with the diet, if necessary.

ISFM guidelines recommend introducing a renal diet as early as possible and to IRIS stage 2 cats. Early intervention means a cat's appetite will be better and a diet better accepted. Plus, the earlier renal secondary hyperparathyroidism can be mitigated, the better.

Conclusion

CKD is a common condition affecting older cats. Earlier diagnosis is preferable to afford more opportunities to intervene and prolong the life of these cats.

Strategies to encourage clients to attend the clinic with their, seemingly healthy, older cats should be devised and implemented. Clients should be well informed and supported as they change their cat's diet. The next article in this series will discuss other ways to manage cats with CKD.

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[Managing feline chronic kidney disease: part 2 – complications](#)

Panel 1

This panel offers guidance on how to transition a cat with CKD to a prescription renal diet.

- Allow time to discuss the transition with owners and the importance of the new diet. A nurse consultation is often the best place to do this, as owners may feel happier discussing their concerns with a nurse.
- Provide materials for the owner to refer to, stressing why changing diet will help his or her cat.
- Do not introduce the diet during a period of illness or hospitalisation as this may lead to food aversion and reluctance to eat the new diet long-term. A hospital cage with a nauseous cat is not the place to introduce such an important intervention.
- Introduce the diet early in the course of the disease, such as IRIS stage 2 or lower, so it is accepted before more clinical signs of CKD effect acceptance develop.
- Although a wet diet is beneficial for cats with CKD to maintain hydration, some cats prefer

dry renal diets over wet diets and other methods of maintaining hydration should be maximised (such as multiple sources of water).

- Offer various formulations and brands of prescription renal diet. Some cats prefer one type over another. Ideally, allow the owner to trial small volumes of different types of diet (wet or dry) and some cats prefer a “rotation” through brands and formulations to maintain adequate intake.
- Gradually transition to the new diet. This can be done by offering old and new diets side-by-side, slowly reducing the volume of the old diet and increasing the renal diet. Mixing old and new diets in one bowl is poorly accepted, in the author’s experience, but there may be exceptions. Transition may take four to eight weeks.
- Early on in the introduction of a new diet, do not mix medications in the renal diet.
- Given the importance of nutrition and acceptance of a renal diet, use of appetite stimulants, such as mirtazapine, may be indicated to encourage consumption of the new diet and improve overall nutrition.

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