

Assessing renal function and hyperthyroidism in cats



Specialist Facilities

Technetium scanning

Thyroid tissue in the cat can be present anywhere from the base of the tongue to the cranial mediastinum. A technetium scan helps to localise overactive thyroid tissue. This means that we can identify overactive tissue that is not immediately apparent on physical examination (i.e. cats with no palpable goitre) and where this tissue is present in the thorax. For cats with thyroid carcinoma, it may also, on rare occasions, give information about active metastatic disease.

Radioactive iodine unit

Radioactive iodine is considered the gold standard treatment for hyperthyroidism. QMHA is one of a handful of places where this treatment option is available. After radioactive iodine cats must remain with the special unit for a minimum of two weeks but after treatment >95% will be cured of their hyperthyroidism.

Dr Rosanne Jepson and Professor Harriet Syme are available for consultation.

Nephrology and Urology Clinic

This service includes unique access to these diagnostic and therapeutic modalities:

- GFR assessment
- Diagnostic imaging of the urinary tract
- Non-invasive cystoscopy
- Laser lithotripsy for urinary stones
- Percutaneous cystolithotomy (minimally invasive surgical stone retrieval)
- Cystoscopic laser ablation of ectopic ureters
- Renal biopsy
- Subureteral bypass and ureteral stent placement
- Dialysis options for acute kidney injury

Diagnostic Laboratory Services

RVC's feline diagnostic services include:

- Feline combined profiles
- Haematology
- Biochemistry :
- BAH Profile inc GGT
- Liver and Kidney Profiles
- TLI Feline
- Urinalysis
- Endocrinology (including T4 and TSH)
- Bacteriology
- Parasitology
- Serology (FeLV/FIV/FIP/Rotavirus)
- Cytology
- Biopsies

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Introduction

Chronic kidney disease (CKD) is the most common condition affecting older cats. Over 80% of cats older than 15 years have reached IRIS stage 1 or greater. Early diagnosis of CKD is key as there is the greatest potential to impact on progression of disease if we start treatment early. As 10% of geriatric cats develop hyperthyroidism, it is unsurprising that these two conditions are often diagnosed together

Diagnostic Dilemmas

When CKD and hyperthyroidism occur together in the same patient, this leads to a diagnostic dilemma. Despite extensive investigations for suitable biomarkers, assessment of kidney function in the hyperthyroid cat, can only accurately be performed once the cat has been treated for hyperthyroidism and euthyroidism achieved.

The effect of hyperthyroidism leading to an increase in GFR means that even novel biomarkers such as symmetric dimethylarginine (SDMA) will be affected by the hyperthyroid state. Additionally, the presence of concurrent disease, such as CKD, can result in ‘sick euthyroid syndrome’, making it more challenging to reach the hyperthyroid diagnosis.

These complex situations require us, as clinicians, to have a systematic understanding of when to perform and how to interpret key diagnostic tests both for assessing renal function and diagnosing hyperthyroidism.

Treatment of cats with concurrent CKD and hyperthyroidism can be a real challenge.

Ensuring that balance is maintained when prescribing for these two conditions is a difficult task. New data suggests that as clinicians we should try to avoid the development of iatrogenic hypothyroidism due its negative consequences on the kidneys and survival.

UK's leading centre for veterinary nephrology and urology

RVC's Small Animal Hospital (Queen Mother Hospital for Animals) is the only centre in the UK to have experts who sub-specialise in veterinary nephrology and urology. Dr Rosanne Jepson, Co-director of the RVC dialysis unit, and Professor Harriet Syme, board member of the International Renal Interest Society (IRIS), provide specialist clinical expertise in the field of canine and feline nephrology



Cat undergoing radioactive iodine injection at RVC Small Animal Referrals

and urology. Together with Professor Jonathan Elliott, they lead the work of the Feline Research Group.

Feline Research Group

Feline Research Group is based at the RVC's Beaumont Sainsbury Animal hospital in London. This clinic provides comprehensive health screening for older cats (> 9 years) with a specific focus on monitoring factors involved in the development and the health of cats diagnosed with feline CKD, hyperthyroidism and hypertension. Their work has a particular focus on the interaction between these conditions in a first opinion setting.

Importance of Collaboration

The nephrology and urology expertise available at the QMHA is strengthened by the multi-disciplinary approach to case management. We work particularly closely with the Emergency and Critical Care,

Extracorporeal Therapies, Diagnostic Imaging and Soft Tissue Surgery Services. In addition, RVC's Therapeutic Drug Monitoring Service provides GFR measurement by iohexol clearance with medical clinical interpretation available from Dr Rosanne Jepson.

We also access the RVC Diagnostic Laboratories, which provides rapid on-site assessment and interpretation of diagnostic samples for patients hospitalised at the QMHA. The RVC Diagnostic Laboratory service is available for vet practices nationwide.

These links mean that the RVC has fast and highly accurate processes for establishing a comprehensive diagnosis for patients referred for renal or urinary related disorders. It is one of only a few centres to offer minimally invasive techniques for the management of urinary tract disorders.

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