

Introduction to Feline Hyperthyroidism

Cause

Feline hyperthyroidism is usually caused by benign adenomatous hyperplasia (*BAH*) of the thyroid glands. Usually this affects both glands although the cause is unknown. BAH causes uncontrolled excessive production of the thyroid hormones, mainly thyroxine (T_4).

Signalment and Clinical Signs

The disease affects elderly cats, usually over 10 years. It is rare before seven years. All breeds of cat can be affected but it is rare in Siamese/Himalayan breeds. Clinical abnormalities include weight loss, vomiting, diarrhoea, polyuria, polydipsia, polyphagia, hyperactivity, unkempt coat, and a “starey” expression. As awareness of the disease has increased earlier cases with less marked clinical signs are now more frequently recognised.

Diagnostic Tests

Routine laboratory findings include increased liver enzymes (*ALT and ALKP in approximately 80% cases*), sometimes a mild-moderate azotemia, inappropriately “normal” lymphocyte count or actual lymphocytosis and sometimes a mild eosinophilia. Confirmation requires circulating total T_4 estimation. At Axiom, total T_4 results $> 60\text{nmol/L}$ are considered supportive. Results between $40\text{-}60\text{ nmol/L}$ are equivocal. Options in equivocal cases include:

Wait and retest total T_4 after a further 4-6 weeks

Free T_4 (*by dialysis*) measurement

T_3 suppression test

Please call the laboratory for further advice on handling equivocal cases. Note that it is important to interpret the total T_4 in the light of the clinical signs. For example a severely cachectic cat with vomiting and PUPD would usually be expected to have a low-normal or subnormal total T_4 concentration. An equivocal total T_4 result in this situation may therefore increase the index of suspicion for early hyperthyroidism.

Treatment

¹³¹I treatment is the preferred option in cases that are otherwise healthy, since the treatment is safe and effective, and usually curative. However this is not an appropriate treatment for cats with concurrent disease (*e.g. congestive cardiac failure*) and is limited due to the costs and availability of appropriately licensed centres in the UK.

Surgical thyroidectomy (*often preceded by a period of medical stabilisation*) is frequently curative although associated with the risk of post-operative hypocalcaemia (usually 1-4 days post op) due to inadvertent parathyroid gland damage/removal. Bilateral thyroidectomies are usually preferred since in most cats both glands are affected (*even if grossly normal at the time of surgery*) but this obviously increases the risk of hypocalcaemia.

Medical management is usually achieved with carbimazole (*Neomercazole*). The starting dose is 5mg TID given at 8 hour intervals. Once thyroidal suppression has been achieved (T_4 less than 20nmol/L) the dose should be reduced to 5mg BID permanently. Very few cats are well controlled on SID treatment. Occasional adverse reactions to carbimazole are recognised and include agranulocytopenia, thrombocytopenia, or rarely severe potentially fatal hepatopathies.

Therapeutic Monitoring

Total T_4 concentrations less than 20nmol/L (*irrespective of the treatment used*) is ideal in treated cats. Values more than 35 nmol/L should prompt consideration of possible early recurrence. “Low” total T_4 values after therapy are rarely clinically significant and such cats should not be medicated with thyroid hormone replacement therapy as this delays recovery and regrowth of ectopic thyroid tissue.

