

Treatment and Therapeutic Monitoring of Canine Hypothyroidism

Treatment

At present the only licensed preparation for treatment of canine hypothyroidism in the UK is Soloxine. This is identical to the naturally occurring hormone. Most dogs respond well to once daily treatment and since this is more economic, this is the suggested approach in cases initially. Tablets should be given in the mornings in order to assist therapeutic monitoring (*see below*).

Dosage

The starting dose of Soloxine is 0.02mg/kg given once daily. This should then be increased or decreased based on the clinical and biochemical response. Dogs should be allowed two weeks on each new dose before making a judgement on its effect. The magnitude of dose adjustment is fairly empirical and often guided by the next available tablet size. Dogs with GI malabsorptive disease may require higher doses. Some texts recommend introducing therapy gradually in patients with concurrent illness, based on the human therapeutic protocol, but there is little evidence to support this approach in dogs at present. However, it is recommended that dogs with concurrent hypoadrenocorticism should be monitored carefully during this initial period in case of an increased physiological glucocorticoid requirement. .

Clinical Monitoring

The response to adequate treatment in a correctly diagnosed hypothyroid dog should be dramatic. Anything other than this should prompt immediate consideration of either sub-optimal therapy or a misdiagnosis. Speed of clinical improvement depends on the system involved: mental demeanour usually improves within 3-10 days. Hair coat regrowth typically takes 10-12 weeks to be obviously improved. Note a worsening of hair loss is common often between weeks two and six of treatment but is not a cause for concern. Weight loss is clearly progressive but a reasonable expectation is 10% body weight reduction over 3 months.

Laboratory Monitoring

Combined total T4 and cTSH measurement is routinely recommended.

Circulating Total T4 should be measured 7-10 days after starting therapy or after changing the dose. Circulating concentrations of the hormone peak approximately six hours post-pill, then decline. Therefore **monitoring samples must be collected six hours post pill** to allow reliable interpretation. Peak values of approximately 60nmol/L are considered IDEAL (*note this is above the "normal" reference range*). Peak circulating total T4 values less than 35nmol/L suggest INADEQUATE therapy. Values greater than 100nmol/L probably warrant a dose REDUCTION.

Concurrent circulating cTSH estimation is also recommended to assist in long term monitoring. In well treated dogs, cTSH usually returns to the lower end of the reference range. However, the expected "suppression" of cTSH does not in itself confirm the adequacy of therapy. Values that remain in the "hypothyroid" range certainly indicate inadequate treatment.

Routine biochemical and haematological improvements are expected in well treated hypothyroid dogs. These improvements are progressive and should occur broadly in line with the clinical changes.