key points

SELECTED BY

Dr Matthew Lockyer
GP with an interest in endocrinology, Suffolk, UK

In regions with normal levels of iodine, hyperthyroidism is caused by autoimmune Graves' disease in 60-80% of cases whereas in regions with iodine insufficiency toxic nodular disease (caused by one or more toxic adenomas) accounts for 50% of all cases of hyperthyroidism and this aetiology is more common in older people. Hyperthyroidism affects up to 2% of women in the UK and the US and is ten times more common in women than men. Graves' disease is characterised by pathognomonic antibodies to the TSH-receptor (TRAbs), the presence of which is largely (80%) determined by genetic factors. The clinical features of hyperthyroidism can be varied. Older people may present in a relatively asymptomatic way. In patients with Graves' disease, ophthalmopathy may occur in around 25%.

It is important to distinguish thyrotoxicosis with hyperthyroidism from transient causes of thyrotoxicosis without hyperthyroidism. TRAbs are raised in Graves' disease and can be easily measured in most centres. Patients aged over 60 years with hyperthyroidism have a three-fold increased risk of atrial fibrillation (AF) and the risk of embolic stroke is high in these individuals. Patients with hyperthyroidism should be referred to secondary care.

There are three treatment modalities for Graves' disease: a course of antithyroid drugs, radioiodine (131-I) or thyroidectomy. The most commonly used antithyroid drug is carbimazole. Neutropenia and agranulocytosis are rare side effects of antithyroid drugs but all patients should be advised to have an urgent blood count done if they develop a sore throat, fever or mouth ulcers.

Subclinical hyperthyroidism is a biochemical diagnosis of levels of serum TSH below normal with circulating fT3 and fT4 levels within the reference range. NICE recommends that patients with 2 serum TSH readings < 0.1 mIU/L, measured 3 months apart, are referred to secondary care for further evaluation and consideration of treatment.

Overt hypothyroidism is present in 0.2-5% of the population and is more common in women and with advancing age. This is usually managed in primary care and rarely requires referral. The most common aetiology is chronic autoimmune inflammation (Hashimoto's thyroiditis) which is characterised by raised concentrations of thyroid antibodies. The treatment of choice is levothyroxine (L-T4) monotherapy in tablet form taken on an empty stomach.

Subclinical hypothyroidism is a biochemical diagnosis of a raised serum TSH with normal levels of fT4, which affects up to 10% of the population. NICE recommends the measurement of TPO antibodies. Levothyroxine replacement is indicated for those with serum TSH $\geq$ 10 mIU/L on two occasions 3 months apart. For those with serum TSH above the reference range but < 10 mIU/L treatment may be considered in patients aged under 65 who have symptoms of hypothyroidism.