# Hyperthyroidism and goitre

## *Executive summary*

## Introduction

Hyperthyroidism is excess production and/or secretion of thyroid hormones (overactive thyroid gland).

Goitre refers to enlargement of the thyroid gland. Maybe diffuse or nodular and may be associated with normal, decrease or increase thyroid hormone production.

Hyperthyroidism and goitre in The Gambia are most often caused either by Grave’s disease or by nodular disease. As everywhere, thyroid disease is more common in women than in men.

Nodular disease is probably linked to chronic iodine deficiency and is more common in older patients. It may or may not be associated with hyperthyroidism.

## Target User

* Nurses
* Doctors

## Target area of use

* Outpatient department
* Ward

## Key areas of focus / New additions / Changes.

This guideline addresses the diagnosis and management of hyperthyroidism and goitre.

## Limitations

There is limited availability of an alternative to carbimazole in the country.

Limited access to surgeons skilled in thyroidectomy. There is no access to radioiodine treatment.

## Presenting symptoms and signs

Goitre is a common presenting symptom of thyroid disease.

Other symptoms related to hyperthyroidism include:

* Unintentional weight loss (despite increased appetite) (although a few patients may gain weight, if excessive intake outstrips weight loss)
* Shakiness
* Nervousness
* Anxiety
* Increased perspiration
* Heat intolerance
* Palpitations
* Chest pain – often occurs in the absence of cardiovascular disease
* Frequent bowel movements
* Reduction in menstrual flow or oligomenorrhea

Elderly patients may have only cardiovascular symptoms, commonly new onset atrial fibrillation.

Patients with Grave’s disease may also present with eye disease (proptosis, periorbital oedema, diplopia) and may have a past medical history of autoimmune disease (such as rheumatoid arthritis, vitiligo etc).

## Examination findings

### General examination

* Raised HR or AF
* Hypertension – with wide pulse pressure
* Warm moist, smooth skin,
* Lid lag, staring appearance
* Tremor
* Muscle weakness

### Thyroid

In Grave’s disease, the thyroid is typically diffusely enlarged and firm. Multinodular goitres are softer, but may be much larger. Pain is very unusual.

## Differential diagnoses

* Anxiety Disorders
* Panic Disorder
* Withdrawal Syndromes
* Delirium Tremens (DTs)

## Investigations

US of neck is essential to identify nodules.

ECG may show sinus tachycardia or atrial fibrillation (especially in elderly patients).

The most reliable screening measure of thyroid function is the thyroid-stimulating hormone (TSH) level. Hyperthyroidism is confirmed by the presence of a TSH level which is low or suppressed to unmeasurable levels (except in the case of secondary hyperthyroidism due to pituitary disease, which is not considered in this guideline).

If the TSH is low, then order free T3 and free T4 at the next appointment. The diagnosis is confirmed if these are raised. Sub-clinical hyperthyroidism is defined as a decreased but not undetectable TSH level (< 0.5 mIU/L) in combination with serum concentrations of T3 and T4 that are within the reference range.

## Management

### Non-toxic goitre

This does not usually need any immediate treatment. Encourage the patient to use iodised salt. If the goitre is large or the patient is distressed, then consider referral to the surgeons at KGH or EFSTH.

### Subclinical hyperthyroidism

Consider seeking specialist advice on managing subclinical hyperthyroidism in adults if they have:

* 2 TSH readings lower than 0.1 mIU/L at least 3 months apart ]

AND

* evidence of thyroid disease (for example, a goitre or positive thyroid antibodies) or symptoms of thyrotoxicosis.

Consider seeking specialist advice on managing subclinical hyperthyroidism in all children and young people.

### Hyperthyroidism.

Once hyperthyroidism is confirmed by a low TSH, it becomes necessary to check free T4 and T3 (fT3, fT4). .

Initial treatment

Before starting antithyroid drugs for adults, children and young people with hyperthyroidism, check **full blood count** and liver function tests.

Start

* adults with HR > 90 on Propranolol 40 mg TDS.
* children with HR > 100 and cardiovascular symptoms on Propranolol 0.5-1.0 mg/kg TDS.

Once the fT4 is available, start Carbimazole as outlined in the table below.

|  |  |  |
| --- | --- | --- |
| **fT4** | **Adult dose** | **Children’s dose** |
| 1.85 – 2.78 ng/dl | 5-10 mg OD | 0.25 mg/kg OD |
| 2.78 – 3.7 ng/dl | 10-20 mg OD | 0.5 mg/kg OD |
| 3.7 – 5.55 ng/dl | 30-40 mg OD | 0.75 mg/kg OD |

Recheck fT3 and fT4 (but not TSH which is slow to normalize) 1 month after starting treatment. Once the levels of both are normal, reduce Carbimazole dose by 50% and then recheck again in 6/52.

Maintenance

Once the patient is euthyroid and stable on a maintenance dose of Carbimazole (typically 10 mg OD in adults), check the fT3, fT4 every 3/12. Stop the propranolol.

Carbimazole is associated with a 1 in 1000 risk of agranulocytosis and a 3 in 10000 risk of liver failure.

* Warn the patient to return urgently if they develop a febrile illness, pharyngitis, itchy rash, jaundice, change of colour of stool or urine, abdominal pain or bloating, anorexia, nausea or vomiting.
* Check the FBC or LFTs as appropriate in any patient presenting with these symptoms.
* If either have changed from baseline, then you may need to stop the carbimazole – remembering that there is no alternative treatment easily available in the Gambia.

Further treatment

Patients with a toxic nodular goitre are very likely to need surgery once they are euthyroid and should be referred for this.

Patients with Grave’s disease who have been on treatment for 18 months or more may be able to stop treatment and remain in remission.

* Review the patient clinically 1/12 after stopping treatment. If they are well, review 3 monthly and check TSH, fT3, fT4 at each appointment until they have been euthyroid off treatment for 1 year. Then discharge the patient.
* If they develop hyperthyroidism once again, then reestablish on treatment and, once they are euthyroid, refer for surgery.

## Key Issues for Nursing care

## Refer all patients with possible thyroid disease to the doctor.

## References

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