

Epidemiology

- Incidence: More commonly subclinical than overt. F>M. Increases with age.
- Autoimmune hypothyroidism is more common in Japan.

Aetiology

Primary Hypothyroidism

- Autoimmune - Hashimoto's thyroiditis (+goitre) and atrophic thyroiditis.
- Iatrogenic - radio-iodine treatment, surgery, radiotherapy to neck (no goitre usually).
- Iodine deficiency - commonest cause worldwide (+goitre).
- Drugs - amiodarone, contrast media, iodides, lithium and antithyroid medication.
- Congenital defects - e.g. absence of thyroid gland or dysmorphogenesis.
- Infiltration of thyroid - e.g. amyloidosis, sarcoidosis and haemochromatosis.

Secondary Hypothyroidism

- Pituitary/Hypothalamic disorders - neoplasm's and trauma.

Transient Hypothyroidism

- Withdrawal of thyroid suppressive therapy.
- Puberty
- Post-partum thyroiditis. (6-7% women in 6/12 post partum)
- Subacute/chronic thyroiditis with transient hypothyroidism (de Quervain's).

Presentation

Insidious onset with non-specific symptoms. May have features of other autoimmune diseases.

Features

- Tiredness, lethargy, cold intolerance
- Dry skin, loss of hair & outer 1/3 eyebrow.
- Slowing of intellectual activity.
- Constipation
- Decreased appetite with weight gain
- Deep hoarse voice
- Menorrhagia and later oligo- or amenorrhoea
- Reduced libido
- Impaired hearing
- Dry coarse skin, hair loss and cold peripheries.
- Puffy face, hands and feet (myxoedema).
- Bradycardia.
- Delayed tendon reflex relaxation.
- Carpal tunnel syndrome.
- Proximal myopathy
- Serous cavity effusions e.g. pericarditis or pleural effusions.

Myxoedema features: (accumulation of mucopolysaccharides)

- Expressionless dull face
- Peri-orbital puffiness, swollen tongue, sparse hair.
- Pale, cool skin with rough, doughy texture.
- Enlarged heart.
- Mega-colon/intestinal obstruction.
- Cerebellar ataxia.
- Psychosis.
- Encephalopathy.
- Coma (\downarrow LOC, seizures, \downarrow T, \downarrow RR):

Investigations

Bloods: TFTs, Thyroid antibodies (Anti-thyroid peroxidase or anti-thyroglobulin antibodies are found in 90 - 95% of patients with autoimmune thyroiditis), CK, lipids (\uparrow chol and \uparrow TGs), FBC (normocytic or macrocytic anaemia). UEC (hypoNa)

Imaging: If asymmetric goitre - e.g. USS to rule out neoplastic lesions. CXR - effusions

Other: ECG

Myxoedema Coma - decompensated hypothyroidism

- Mostly in elderly patients and is associated with a high mortality rate.
- Precipitants: Hypothermia (common), infections (pneumonia, UTI), medications (amiodarone, anaesthesia, BB, diuretics), CNS drugs (Li, phenytoin, rifampicin), other events (↓BSL, GI bleed, surgery, trauma, burns, CVA, resp depression and CO₂ retention)
- Poor compliance may also predispose to myxoedema coma.
- Hypoventilation plays a major role with resulting hypoxia and hypercapnia.
- Metabolic disturbances are also prominent including, hyponatraemia and hypoglycaemia.
- May not have myxoedematous skin changes.

Myxoedema Coma Management

General measures:

- Continuous monitoring + ICU involvement
- CPAP or mechanical ventilation if significant hypercapnia or hypoxia.
- Correct hypovolaemia, hypoglycaemia and electrolyte disturbances.
- Avoid pressor agents and inotropes as they provoke arrhythmias.
- Avoid sedatives and respiratory depressants
- Warm hypothermic patients slowly to avoid vasodilatory hypotension.

Thyroid replacement therapy:

- **liothyronine (T3)** 25-50mcg IV stat + 10-20mcg IV q8h
- Or **levothyroxin (T4)** 300-500mcg IV stat then 50-100mcg IV od

Corticosteroids:

- **Hydrocortisone** 100mg IV q6h

Fluid restriction if hyponatraemia

Treat precipitants

General Hypothyroid Management

- Levothyroxine in the dose range of 75-150mcg (elderly 25-50mcg or if known IHD) OD
- Titrated to clinical features and TFT.
- Controversial if sub-clinical hypothyroidism.
- Drug interactions: FeSO₄, Ca supplements, rifampicin and amiodarone.

Prevention

- Be vigilant and diagnose hypothyroidism early.
- Low threshold for TFTs in the elderly if changes in mental state, wt gain or constipation.