

# Thyrototoxic Crisis



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A rare condition, occurring in 1–2% of patients with established hyperthyroidism (usually toxic diffuse goitre—‘Graves’ disease’).

Mortality is significant (~10%).



# Causes

It is often precipitated by a physiological stressor:

- Premature or inappropriate cessation of anti-thyroid therapy.
- Recent surgery or radio-iodine treatment.



# Causes

- Intercurrent infection (especially chest infection).
- Trauma.
- Emotional stress.
- DKA, hyperosmolar diabetic crisis, insulin-induced hypoglycaemia.
- Thyroid hormone overdose.
- Pre-eclampsia.



# Clinical features

Onset may be sudden with features of hyperthyroidism and adrenergic overactivity.

Fever and cardiovascular and neurological symptoms are common.



# Clinical features

Weight loss, increased appetite, tremor, irritability, emotional lability, heat intolerance, sweating, itch, oligomenorrhoea, agitation, anxiety, confusion, coma, palpitations, tachycardia, AF (rarely, complete heart block).

It may mimic an 'acute abdomen', with abdominal pain, diarrhoea, and vomiting



# Investigations

- U&E, BMG and blood glucose,  $\text{Ca}^{2+}$  (hypercalcaemia occurs in ~10%).
- FBC, differential WCC, coagulation screen.
- *Screen for infection*: mid-stream urine (MSU), blood cultures, sputum.



# Investigations

- Thyroxine (T4 ) and tri-iodothyronine (T3 ) (for later analysis), thyroid stimulating hormone (TSH).
- CXR (searching for pulmonary infection or congestive heart failure).
- ECG (looking for arrhythmias).





# Treatment

- Manage the airway and give O2 if indicated.
- Obtain IV access and commence IVI 0.9% saline (initially 500mL 4-hourly).
- Give propranolol (1mg slow IV over 1 min or 60mg PO) to reduce heart rate.
- Give hydrocortisone 100mg IV.
- If sedation is required, give small titrated amounts of benzodiazepine (eg diazepam 5–20mg PO/IV) or haloperidol.



# Treatment

- Give broad-spectrum antibiotic if infection is suspected.
- Consider cooling measures in hyperthermia.
- Refer for admission (consider admission to ICU).
- Once admitted, carbimazole will normally be given with iodine.
- Do not give aspirin (this can exacerbate the clinical problem by displacing thyroxine from thyroid-binding globulin).



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