23.8 METABOLIC AND ENDOCRINE SUPPORT

23.8.1 THYROID DISORDERS IN CRITICALLY ILL PATIENTS

DESCRIPTION

Non-specific alterations can occur in critically ill patients. The majority revert to normality upon full recovery from the underlying physical insult. The transient dysfunction is attributed to changes in thyroid stimulating hormone (TSH) regulation, altered peripheral metabolism of thyroid hormones, and altered binding of thyroid hormone to thyroid binding globulin.

CAUTION

Thyroid function assessment is not routinely recommended and should be guided by the clinical history and evaluation.

23.8.1.1 SICK EUTHYROID SYNDROME

E07.8

DESCRIPTION

Thyroid dysfunction occurs as a response to the oxidative stress of critical illness and is proportional to the severity of disease. Low T3 levels are often seen soon after ICU admission. High T4 may also be noted early but subsides over time with multiple organ dysfunction syndrome. Thyroid function frequently returns to normal within a few months of disease resolution.

23.8.1.2 HYPERTHYROIDISM

See section 8.18: Hyperthyroidism.

23.8.1.3 THYROID CRISIS

E05.5

DESCRIPTION

See section 8.18.5: Thyroid Crisis.

GENERAL MEASURES

» Treat precipitant factors.

Hemodynamic:

» For volume resuscitation: use balanced salt solutions.

Respiratory

» Supplemental oxygen
» Ventilatory support

Hyperthermia

» Incorporate cooling/ targeted temperature management.
» Use cool, balanced salt solutions initially.
» Apply ice packs and cooling blankets.
» Dextrose solutions may be suitable for continued cooling to cope with high metabolic demands.
» Treat cardiac arrhythmias, if necessary (See section 3.3. Cardiac dysrhythmias).

Metabolic:

» Monitor and correct electrolyte abnormalities.

MEDICINE TREATMENT

For details, see section 8.18.5: Thyroid crisis.

Beta-adrenergic receptor blockade:

- Atenolol, oral, 50 mg daily.
    - Increase to 100 mg if response is suboptimal and patient can tolerate increased beta-adrenergic receptor blockade.
    - An NG tube may be used for administration if an IV formulation is unavailable.

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Hyperthermia:

- Paracetamol, oral, 1000 mg, 4–6 hourly as required (to a maximum of 4g in 24 hours).
    - Maximum single dose: 15 mg/kg/dose.

23.8.1.4 HYPOTHYROIDISM

See section 8.11: Hypothyroidism.