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**Subject: Guideline on Assessment and Management of Hyponatraemia**

**Objective:** To provide a clear and concise reference guide to support clinicians in the assessment and management of patients with hyponatraemia and to identify the underlying cause in non-critical areas of Trust.

**Target Level:** Trust-wide

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**'CG Approved' logo will be added by CG Dept.**

**Evidence Base: Rank: A, B, C or D** (CSG/CG Dept will categorise evidence base)

**Associated Documents:**

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REVIEW HISTORY			
Issue No.	Page	Changes made with rationale and impact on practice	Date

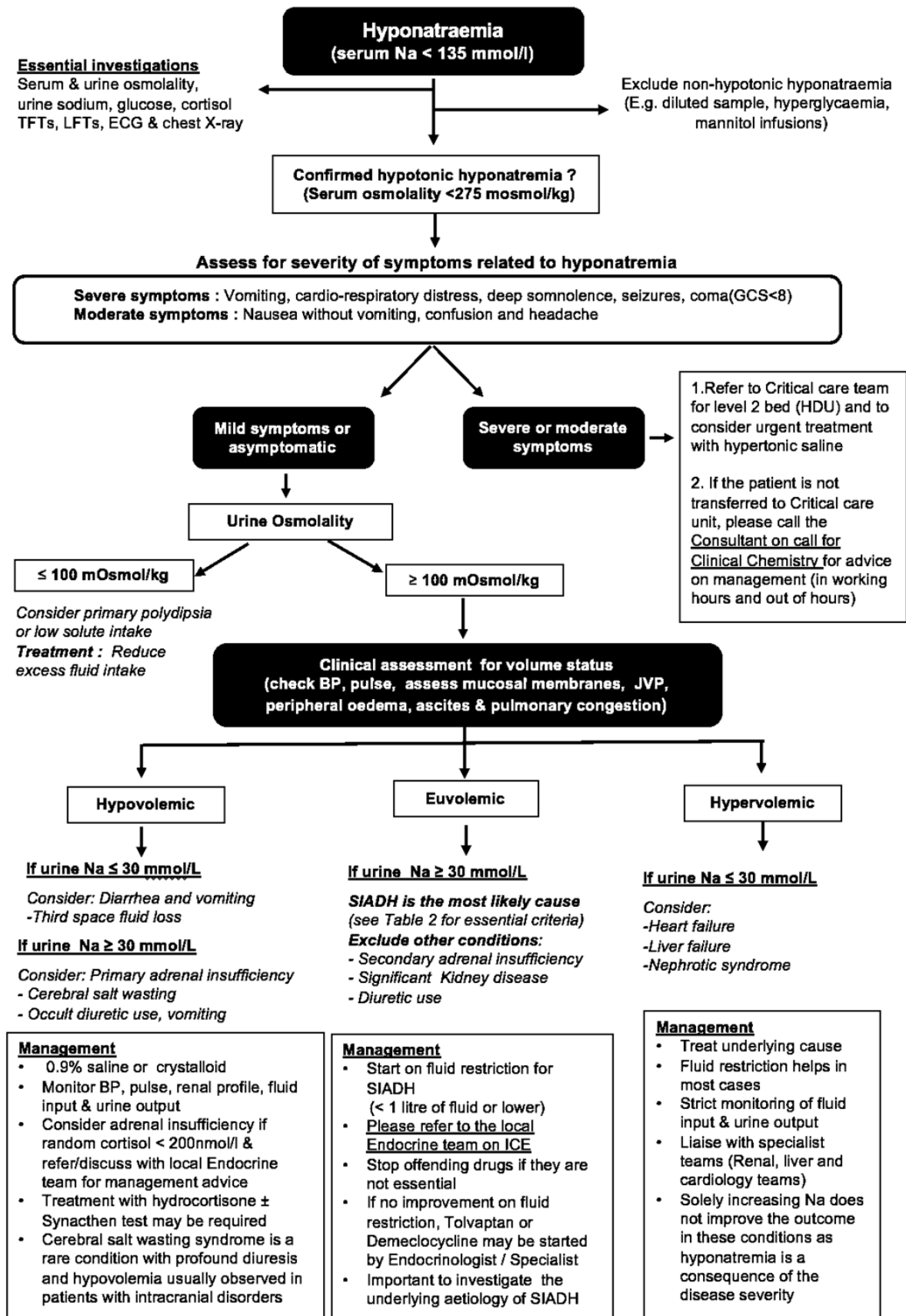
**Introduction:**

- Hyponatraemia (defined as serum sodium <130mmol/L) is the most common electrolyte abnormality encountered in clinical practice.
- It is associated with increased mortality, morbidity and longer length of hospital stay
- Aetiology is often multifactorial; it may be a consequence of acute pathology (e.g. infections, pneumonia), a drug induced electrolyte disturbance or a reflection of underlying severe disease (e.g. malignancy, heart failure and liver failure).
- Most patients with hyponatraemia are asymptomatic, particularly when hyponatraemia is mild and the onset is gradual. Methodical approach is required for diagnosis and treatment based on the underlying aetiology (Refer to the flow chart in page 2)
- Symptomatic hyponatremia is usually related to the severity of hyponatraemia (serum Na <120mmol/L) and the time of development (acute onset).
- Patients with moderate or severe symptoms of hyponatremia may require hypertonic saline treatment in a monitored bed, ideally in a High Dependency Unit (HDU). For further advice on hypertonic saline, please contact the duty medic for clinical chemistry from switch board.
- When treating hyponatraemia with hypertonic saline or other drugs, it is important to avoid rapid correction of serum sodium due to risk of osmotic demyelination syndrome. Careful monitoring of U+E is required to limit the serum sodium to a maximum of 10mmol/L in first 24 hrs and 18mmol/L over 48 hrs.
- Detailed history and clinical assessment is vital in managing this condition. Enquire the duration and onset of symptoms, fluid intake, episodes of diarrhoea or vomiting and other important past medical history e.g. Cirrhosis, renal failure, diabetes.
- Check for medication used by patient that may cause hyponatremia (Table 1, page 3)
- Assess clinically for volume status: Check blood pressure and pulse rate, mucous membranes, signs of fluid overload e.g. peripheral oedema, raised JVP and basal crackles
- Request U&Es, Liver function, TFTs, glucose, cortisol, serum osmolality, urine osmolality, random urine sodium (Hyponatraemia profile test on ICE) and a chest X-ray.

**Classification of Hyponatraemia**

- Biochemical severity (serum sodium): Mild: <130 mmol/l; Moderate: 129 -125 mmol/l and Profound hyponatraemia: <125 mmol/l
- Based on time of development: Acute < 48 hours; Chronic > 48 hours
- Symptoms: Asymptomatic or mild symptoms (gait disturbance or concentration deficits) Moderate symptoms: Nausea without vomiting, confusion and headache
- \*Severe symptoms: Vomiting, cardiorespiratory distress, deep somnolence, seizures, reduced conscious levels, coma (GCS<8).
- \*Symptoms of hyponatraemia overlap with other acute medical conditions. Serum Na >120mmol/l is less likely to cause severe symptoms; please look out for alternative pathologies.

## Algorithm for assessment and management of hyponatraemia



**Table 1: Drugs that cause hyponatremia**

Thiazide diuretics	Bendroflumethiazide, Metolazone, Indapamide, Chlortalidone
Loop diuretics	Furosemide, Bumetanide, Torasemide
Potassium-sparing diuretics	Amiloride, Spironolactone, Triamterene, Eplerenone
Combined diuretics	Co-amilofruse, Co-amilozide
Anticonvulsants	Carbamazepine, Sodium valproate, phenytoin, lamotrigine
Tricyclic (& related) antidepressants	Amitriptyline, Clomipramine, Dosulepin, Imipramine, Nortriptyline, Trimipramine, Mianserin, Trazodone
Other antidepressants	Citalopram, Fluoxetine, Fluvoxamine, Paroxetine, Sertraline Venlafaxine, Duloxetine
MAO inhibitors	Phenelzine, Isocarboxazid, Tranylcypromine, Moclobemide
Antipsychotics	Amisulpiride, chlorpromazine, clozapine, risperidone
Others	Desmopressin metoclopramide, omeprazole, chemotherapy

**Table 2: Essential diagnostic criteria for Syndrome of inappropriate ADH (SIADH)**

- Clinical euvolemia and serum osmolality <275mosm/kg
- Urine osmolality >100mosm/kg at some level of decreased serum osmolality
- Urine sodium >30mmol/L with normal dietary salt and water intake
- Absence of adrenal, thyroid, pituitary or renal insufficiency
- No recent use of diuretic agents

*Adapted from Schwartz WB et.al, Am J Med 23:529–542*

### **References**

- Spasovski G et al. Clinical practice guideline on diagnosis and treatment of hyponatraemia, Eur J Endocrinol 2014; 170: G1–G47.
- Hyponatraemia. Clinical Endocrinology (2000) 52, 667-678
- Hyponatraemia for the clinical endocrinologist. Clinical Endocrinology (2005) 63, 366-374
- Schwartz WB, Bennett W, Curelop S, Bartter FC (1957) A syndrome of renal sodium loss and hyponatremia probably resulting from inappropriate secretion of antidiuretic hormone. Am J Med 23:529–542
- Sherlock M, O’Sullivan E, Agha A et al (2006) The incidence and pathophysiology of hyponatraemia after subarachnoid haemorrhage. Clin Endocrinol 64:250–254
- Brimiouille S, Orellana-Jimenez C, Aminian A, Vincent JL (2008) Hyponatremia in neurological patients: cerebral salt wasting versus inappropriate antidiuretic hormone secretion. Intensive Care Med 34:125–131
- Hillier TA, Abbott RD, Barrett EJ (1999) Hyponatremia: evaluating the correction factor for hyperglycemia. Am J Med 106:399–403
- Verbalis J et al. Diagnosis, Evaluation, and Treatment of Hyponatremia: Expert Panel Recommendations The American Journal of Medicine, Vol 126, No 10A, Oct 2013