

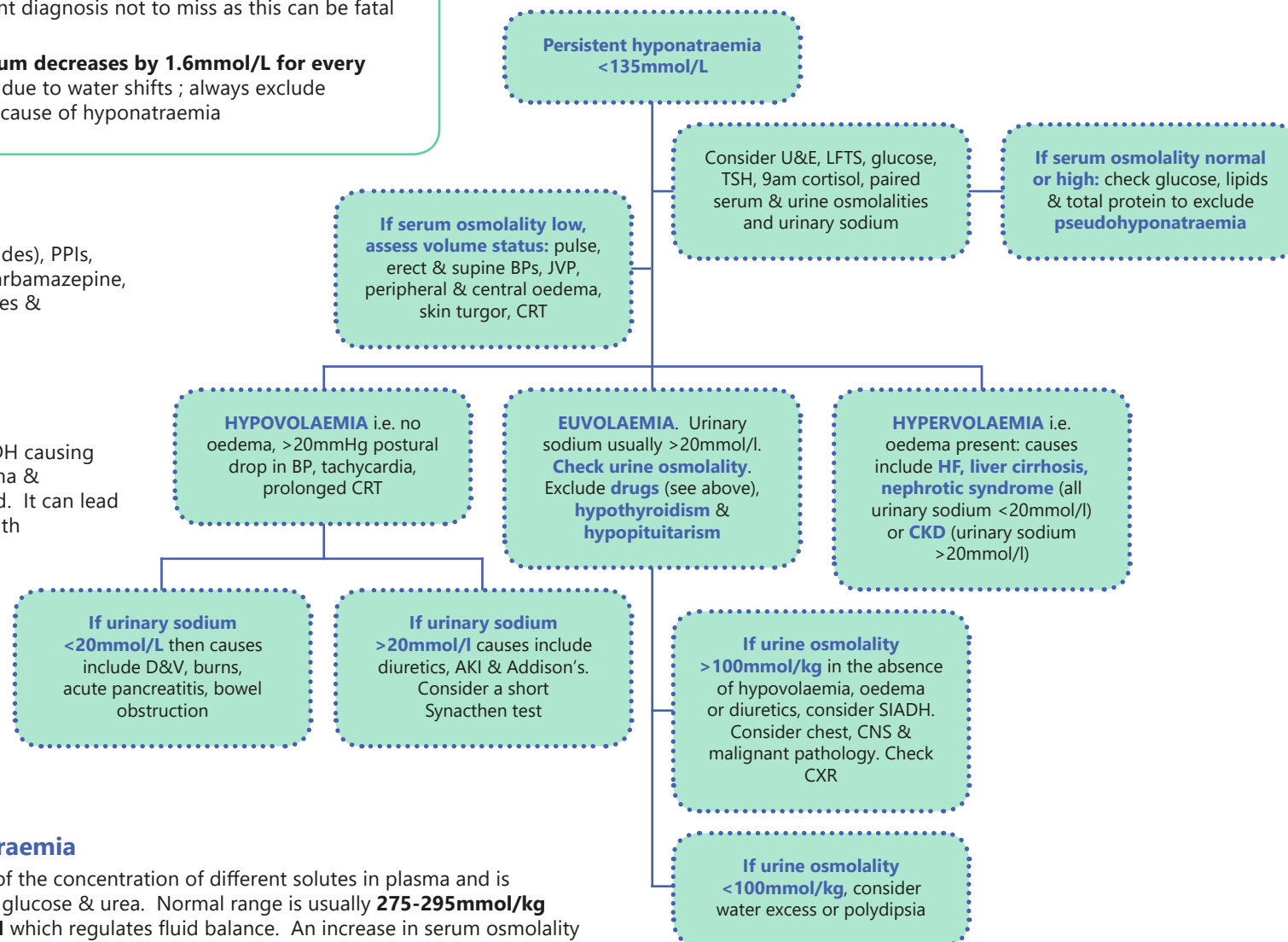
- Chronic hyponatraemia (**Na < 135mmol/L**) is one of the commonest electrolyte abnormalities encountered in primary care and is frequently asymptomatic
- Clinical effects of hyponatraemia depend on **speed of onset, severity & underlying cause**; acute hyponatraemia (onset < 48 hours) is rare but often symptomatic and can cause confusion, coma and even death
- An assessment of **volume status** is pivotal to the diagnosis & management of hyponatraemia
- Addison's disease** is an important diagnosis not to miss as this can be fatal if untreated
- As a rule of thumb, **plasma sodium decreases by 1.6mmol/L for every 5.5mmol/L increase in glucose** due to water shifts; always exclude hyperglycaemia or diabetes as a cause of hyponatraemia

## Causes of Hyponatraemia:

- Drugs:** Diuretics (especially thiazides), PPIs, SSRIs, ACEi & ARBs, amiloride, carbamazepine, phenytoin, sulphonylureas, opiates & recreational drugs e.g. Ecstasy
- CKD & nephrotic syndrome**
- Hyperglycaemia**
- Liver cirrhosis** with ascites & HF
- SIADH:** excessive secretion of ADH causing water retention, dilution of plasma & accumulation of intracellular fluid. It can lead to cerebral oedema, coma & death
- D&V**
- Water excess** (e.g. polydipsia)
- Severe hypothyroidism & Addison's disease**
- Pseudohyponatraemia:** hyperglycaemia, hypertriglyceridaemia & hyperproteinaemia (e.g. myeloma)

## Investigations for Hyponatraemia

- Serum osmolality** is a measure of the concentration of different solutes in plasma and is primarily determined by sodium, glucose & urea. Normal range is usually **275-295mmol/kg** and is tightly maintained by **ADH** which regulates fluid balance. An increase in serum osmolality results in secretion of ADH which increases water reabsorption in the kidneys to return serum osmolality to baseline
- Urine osmolality** is a measure of urine concentration and whether this is appropriate for the clinical state of the individual. Normal range is usually **300-900mmol/kg water**. After 12-14 hours fluid restriction, urinary osmolality should be >850mmol/kg water
- Urine sodium** is useful for the differential diagnosis of hyponatraemia but must be interpreted with **volume status** and is difficult to interpret in those taking diuretics
- Serum urea** is a marker of **extracellular fluid volume**. A raised urea may suggest dehydration
- Serum creatinine** is useful as an assessment of **renal impairment** as a cause of hyponatraemia



## Glossary of Abbreviations

**ADH:** antidiuretic hormone **CKD:** chronic kidney disease **CNS:** central nervous system **CRT:** capillary refill time **D&V:** diarrhoea & vomiting **HF:** heart failure **SIADH:** Syndrome of inappropriate antidiuretic hormone

## References

- "Practice Pointer: Hyponatraemia in primary care" BMJ 2019;365:l1774