CLINICAL GUIDELINE

Cranial Diabetes Insipidus, Inpatient Management

A guideline is intended to assist healthcare professionals in the choice of disease-specific treatments.

Clinical judgement should be exercised on the applicability of any guideline, influenced by individual patient characteristics. Clinicians should be mindful of the potential for harmful polypharmacy and increased susceptibility to adverse drug reactions in patients with multiple morbidities or frailty.

If, after discussion with the patient or carer, there are good reasons for not following a guideline, it is good practice to record these and communicate them to others involved in the care of the patient.

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Lead Author:	Eilidh Lynch
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Important Note:

The online version of this document is the only version that is maintained.
Any printed copies should therefore be viewed as 'Uncontrolled' and as such, may not necessarily contain the latest updates and amendments.

Inpatient Management of existing or known Cranial Diabetes Insipidus

NB: This guideline applies to general inpatients with known cranial diabetes insipidus (AVP deficiency). It does not apply to new diagnoses, patients in intensive care, pregnant patients, patients post pituitary surgery, or those with nephrogenic diabetes insipidus (AVP resistance).

Cranial diabetes insipidus (AVP deficiency) is a condition of relative or absolute deficiency in the posterior pituitary hormone vasopressin (AVP). Untreated patients develop uncontrolled diuresis; polyuria in excess of 10L/day; dehydration and hypernatraemia.

Patients with cranial diabetes insipidus are treated with synthetic AVP (desmopressin) which acts by reducing renal free water excretion. Patients also maintain their fluid balance by drinking water to thirst.

Approach to an Inpatient with known Cranial DI

❑ All patients should be identified on admission and referred to the Endocrine Team particularly if deemed high risk (e.g., patients with adipsia, reduced mobility, reduced cognition/ GCS, frailty, nil by mouth).

❑ Ensure desmopressin is administered on time and as prescribed. It **MUST NOT** be omitted without a clear clinical plan or senior medical advice.

❑ All patients should have U&Es on admission and careful fluid balance monitoring. Check U&Es at least daily during admission or more regularly in high-risk patients.

❑ Patients with cranial Diabetes Insipidus often have wider hypopituitarism - if they have adrenal insufficiency and are on oral steroid replacement remember to double oral dose or give IV when unwell.

Desmopressin – Alternative Routes

Desmopressin can be administered intranasally, orally, sublingually, IM or IV. If a patient is unable to swallow, then equivalent IV or IM doses can be used temporarily – see table. Please refer to Endocrinology if unable to take usual medication.
Doses **MUST NOT** be omitted. If there isn't any in the ward supply, check if the patient has a supply or discuss with on-call pharmacy urgently.

Route	Equivalent Dose	Duration of Action	Frequency
Oral	100 micrograms	12 hours	2-3 times daily
Sublingual	60 micrograms	12 hours	2-3 times daily
Intranasal	10 micrograms	12 hours	1-2 times daily
IM or IV injection	1 microgram	IM 10-16 hours IV 8 hours	Max 4 mcg daily

Sodium Disorders in inpatients with cranial DI

Hypernatraemia

Hypernatraemia is a medical emergency and requires urgent assessment, close monitoring of clinical status, fluid balance and serum sodium – consider referral to mHDU/ICU and involve Senior Medical/Endocrinology early.

Hypernatraemia may indicate dehydration due to reduced fluid intake, excess excretion of free water or omission of desmopressin. Can be mild (Na 146-149 mmol/L), moderate (150-159 mmol/L) or severe (>160mmol/L).

Dehydrated patients should be fluid resuscitated with 0.9% sodium chloride in the first instance. Serum sodium should be checked 4 hourly until normal, then ≥12-hourly once stable.

Patients may not be polyuric at presentation if low circulating volume and therefore fluid resuscitation is first line treatment.

Consider a single dose of desmopressin (1 micrograms IV) if patient develops excessive production of dilute urine after initial fluid resuscitation (e.g Urine output >250ml/hr/3 hours). Further doses should only be given after discussion with Senior medical or Endocrine team due to risk of over-correction of serum sodium. The patient's subsequent regular desmopressin dose will need reviewed depending on clinical response to stat dose.

Severe symptomatic hypernatraemia should be corrected by up to 5mmol/L in the first hour but slower in mild or asymptomatic cases. Serum sodium should not fall by more than 10mmol/L in 24 hours.

Hyponatraemia

May indicate overhydration due to excess water intake or excessive desmopressin use. Involve Senior medical or Endocrinology early.

Consider delaying desmopressin dose until serum sodium normalises or if serum sodium overcorrecting.

Close monitoring of serum sodium at least 4-6 hourly until normal.