

Cerebral Salt Wasting Treatment

✖ Caution! Restricting fluids (which is the treatment for [SIADH](#)) may be hazardous in the case of [CSW](#) (SIADH or CSW may occur after SAH) since dehydration increases blood viscosity, which exacerbates ischemia from vasospasm.

Treatment goals:

1. volume replacement to achieve euvoolemia (avoid hypovolemia & induced hypervolemia)
2. positive salt balance
3. avoid excessively rapid correction of hyponatremia or overcorrection which may be associated with osmotic demyelination
4. ✖ avoid hyperchloremic acidosis due to overuse of NS or 3% sodium

Differentiating this syndrome with the [syndrome of inappropriate antidiuretic hormone secretion](#) (SIADH), which may occur in the same group of patients, is necessary in order to administer the correct treatment which consists of fluid restriction and sodium replacement in SIADH and fluid and sodium replacement as well as occasional mineralocorticoid therapy in CSW ¹⁾.

Treated with volume replacement (opposite to [SIADH](#)) and [sodium](#); symptoms from derangements due to CSW may be exacerbated by fluid restriction ²⁾.

Volume replacement.

Positive salt balance.

Avoid excessively rapid correction of hyponatremia or overcorrection which may be associated with osmotic demyelination as with SIADH.

● Interventions

○ Hydrate patient with 0.9%NS at 100–125 ml/hr. For severe cases, 3% saline at 25–50 cc/hr is occasionally required. ○ Do not give furosemide.

○ Salt may also be simultaneously replaced orally.

○ Blood products may be needed if anemia is present.

○ Medications a) Fludrocortisone acetate acts directly on the renal tubule to increase sodium absorption. Benefits of giving 0.2 mg IV or PO q d in CSW have been reported, ³⁾ but significant complications of pulmonary edema, hypokalemia and HTN may occur.

b) Urea: an alternative treatment using urea may be applicable to the hyponatremia of either SIADH or CSW, and therefore may be used before the cause has been ascertained: urea (Ureaphil®) 0.5 grams/kg (dissolve 40 gm in 100–150 ml NS) IV over 30–60 mins q 8 hrs ⁴⁾

Use NS + 20 mEq KCl/Lat 2 ml/kg/hr as the main IV until the hyponatremia is corrected (unlike mannitol, urea does not increase ADH secretion). They supplemented with colloids (viz. 250 ml of 5% albumin IV q 8–12 hrs x 72 hrs).

1)

Janus D, Wojcik M, Dolezal-Oltarzewska K, Kalicka-Kasperczyk A, Poplawska K, Starzyk JB. Cerebral salt wasting in a postoperative period. *Neuro Endocrinol Lett*. 2014 Jul 20;35(4). [Epub ahead of print] PubMed PMID: 25038596.

2)

Diringer M, Ladenson PW, Borel C, Hart GK, Kirsch JR, Hanley DF. Sodium and water regulation in a patient with cerebral salt wasting. *Arch Neurol*. 1989 Aug;46(8):928-30. PubMed PMID: 2757534.

3)

Hasan D, Lindsay KW, Wijdicks EFM, et al. Effect of Fludrocortisone Acetate in Patients with Subarachnoid Hemorrhage. *Stroke*. 1989; 20:1156–1161

4)

Reeder RF, Harbaugh RE. Administration of Intravenous Urea and Normal Saline for the Treatment of Hyponatremia in Neurosurgical Patients. *J Neurosurg*. 1989; 70:201–206

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