RACC Hypovolemic or Euvolemic Hyponatremia Guideline

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Population

- Na Level ≤ 120 mmol/L
  or
- Na Level ≤ 125 with symptoms believed to be attributable to hyponatremia
  and
- Pt is believed to be **euvolemic or hypovolemic/dehydrated**, but not hypervolemic/whole-body volume overloaded (e.g. cirrhosis, CHF)

Initial Labs

- Chemistry Q 1 H (for 1st 6 hours)
- Hepatic Panel x 1
- Serum Osmolality q2h (for 1st 6 hours)
- Serum Uric Acid x 1
- TSH x 1
- Cortisol x 1
- UA, Urine Osmolality, Urine Cr, Urine Lytes, Urine Urea, Urine Uric Acid q6 hours

Initial Imaging

- If any doubt as to cause of AMS or Seizures, obtain Head CT

Nursing

- Strict I/Os (hourly urine outputs recorded)
- Foley, if indicated
- Notify Provider if hourly urine output is > 200 ml/hr at any point
- If drawing blood from the same line as hypertonic saline; turn off the infusion, flush the line, and wait 5 minutes prior to drawing samples after wasting appropriate blood volume.

Consult

- Physician to Physician: Nephrology, when patient identified

Initial Medication

- If the patient is seizing or has AMS, Give 3% NaCl, 100 mL IVPB over 10 min x 1 IVPB, peripherally or centrally. If 3% NaCl is not **immediately available**, administer 50 mls of 8.4% Sodium Bicarbonate (1 amp of Bicarb).

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Or

- In neurologically stable patients, Give 3% NaCl, 100 mL IVPB over 20 min x1 IVPB, peripherally or centrally

And simultaneously

- dDAVP 2 mcg IV over 15 minutes Stat and Q6 hrs x 4 doses

Assessment after 1st dose of Hypertonic Saline

- If 1-hour Na level < 3 mmol/L increase, give second dose of 3% NaCl 100 mL over 20 min x1 and continue to check Chem 8 Q1H for up to 6 hours;
- If 1-hour Na level ≥3 mmol/L increase, → **DO NOT GIVE Additional** 3% NaCl
- Send repeat chemistry

Assessment after 2nd dose of Hypertonic Saline, if Given

- If repeat Na level < 3 mmol/L from initial sodium, give third dose of 3% NaCl 100 mL over 20 min x1
- If repeat Na level ≥3 mmol/L from initial sodium, **DO NOT GIVE** 3% NaCl

Goal is to achieve 3-6 mmol/L increase in Na in the 1st 6 hours
Goal is to increase sodium by no more than 6mmol/L in the 1st 24 hours

Continued Management

- Plan is to keep patient in the RACC for the first 4-6 hours. Based on patient response and labs, decide on site of admission
- Beware of simultaneous repletion of potassium as this will increase the serum sodium
- Expect urine outputs of < 30-40 ml/hr while on dDAVP protocol. If urine output is > 100 ml/hr administer additional 2 mcg dDAVP stat and increase Q6 dose to 4 mcg.

Overshoot

If increase more than 6 mmol/L over 1st 24 hours:

- DDAVP 2 mcg IV X1 and then q 6hrs (if not already administered)
- Administer D5W correction over the next 4 hours. Amount required is calculated based on total body water needed to decrease Na back to ≤ 6 mmol/L from baseline

Mls of D5W = 600 [weight kg] [1 - (Current Na/Desired Na)]

Admission:

- MICU Consult-If symptomatic and/or Na sig. < 120. Place central line and foley catheter
- Medical Floor-If asymptomatic with Na > 120, admit to Medical floor

Formulas/Calculators:

Predicted Sodium Calculator-Adrogue-Madias Formula

Change serum Na in mmol/L by **100 ml of 3% NaCl** = (51.3 mmol) /((TBW in L) + 100)

TBW Calculator Watson formula

Male: 2.447 - (0.09516 X age [years]) + (0.1074 X height [cm]) + (0.3362 X weight [kg])

Female: -2.097 + (0.1069 X height [cm]) + (0.2466 X weight [kg])

Continued Orders

- **MICU** – If symptomatic and/ or an increase more than 6 mmol/L in 6 hrs, Chem 8 q 2hr, serum osmolality every 4 hr, urine lytes and osmolality every 4 hr X first 24 hrs

- **MEDICAL FLOOR** – Chem 8 q 4hr, serum osmolality every 6 hr, urine lytes and osmolality every 6 hr X first 24 hrs. Goal: increase no more than 6 mmol/L in 24 hrs; no further rise if already achieved in 6 hrs. Water intake to minimum, Regular diet with no salt restriction