

ELECTROLYTES IMBALANCE

NA

More than 145
HYPER

less than 135
HYPO

Both present with neurologic sx

Caused by the 6 Ds:

- Diuresis - DI
- Dehydration - Diarrhea
- Docs (iatro) - Disease (Kidney, SCD)

Choice of fluid:

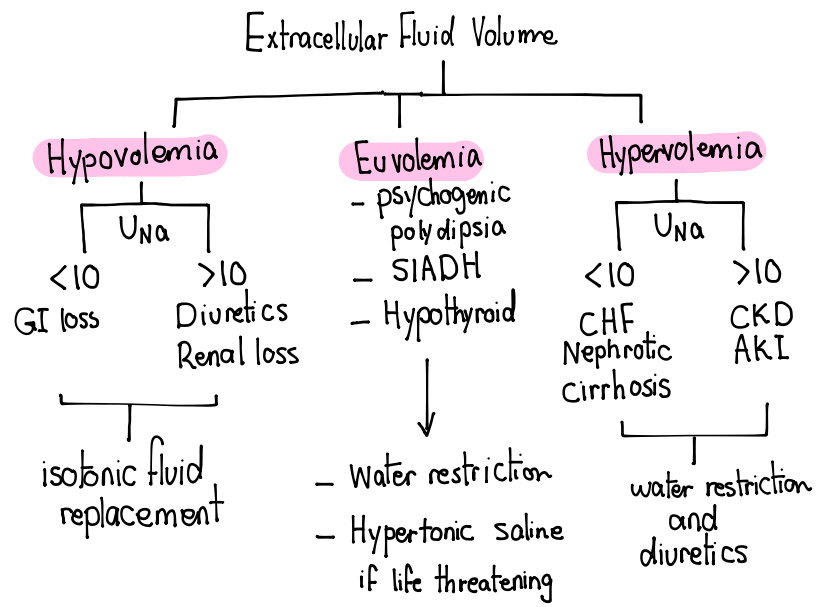
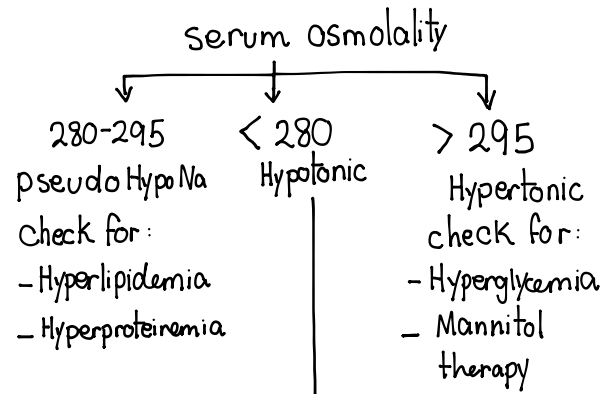
stable: D5W

unstable: Isotonic NS

Avoid rapid correction

complication: cerebral edema

(not more than 0.5 meq/L/h)



Avoid rapid correction: central pontine myelinolysis
(not more than 0.5 meq/L/h)

ELECTROLYTES IMBALANCE

More than 5 HYPER

K

less than 3.6 HYPO

- ⊗ Present with areflexia, weakness, arrhythmia, colic.. Flaccid paralysis
- ⊗ Etiology:
 1. pseudo: Hemolysis, leukocytosis, thrombocytosis
 2. MACHINE:
 - Medications: ACE-I, NSAIDS, BBs
 - Acidosis
 - Cellular destruction: Burns, trauma, Rhabdomyolysis
 - Hypoaldosteronism, Hypoinsulinemia
 - Intake, IV RTA
 - Nephrons, renal failure
 - Excretion problem
- ⊗ ECG changes: tall, peaked T, wide QRS, prolonged PR, loss of P
- ⊗ Tx: C BIG K : - Calcium gluconate
 - Bicarbonate
 - Insulin
 - Glucose
 - Kayexalate
- ⊗ Dialysis for renal failure /severe

- ⊗ Present with fatigue, cramps, ileus
- ⊗ Etiology:
 - Diarrhea, Diuretics, Drugs (gentamycin)
 - Laxative abuse
 - RTA I, II
 - Alkalosis
 - Hyperaldosteronism (1°, 2°)
 - Bartter, Gitelman's syndromes
 - Hypomagnesemia
- ⊗ ECG: T-wave flattening, U waves
- ⊗ Tx: Oral /IV potassium (not more than 20 meq/L/h)
Replace Mg

ELECTROLYTES IMBALANCE

More than 10.2
HYPER

Ca

less than 8.5
HYPO

⊗ Present with:

Bones: Fractures

Groans: constipation

Stones: kidney

psychiatric overtones:

- altered mental status

⊗ Etiology: CHIMPANZEES

- Calcium supplement

- Hyper PTH - Iatro (thiazide)

- Milk-alkali - Paget's

- Adrenal ↓, Acromegaly

- Neoplasm - Zollinger-Ellison

- Excess vit A - Excess vit D

- Sarcoidosis

⊗ ECG: Short QT

⊗ Tx: - IV hydration

- furosemide

- Calcitonin

- Bisphosphinates

⊗ Present with cramps, tetany,
perioral and acral numbness

- Chvostek's sign

- Trousseau's sign
Carpal spasm

⊗ Etiology:

- Hypo PTH (post thyroidectomy)

- Vit D ↓

- Acute pancreatitis

- Consider DiGeorge in infants

- Hypo Mg

⊗ ECG: prolonged QT

⊗ Tx: - replace Mg

- Oral Ca

(IV Ca in severe)