FLUID AND ELECTROLYTE BALANCE

POEM INTERPRETATION

(paragraph 1) When Calcium and Magnesium have same signs/symptoms. When low, they will exhibit signs of hypocalcemia/hypomagnesemia. When these electrolytes are LOW, everything is excitable. Chvostek and Trousseau are signs of tetany – facial twitching and carpal pedal spasms which can be seen when low Mg and CA+. The Deep tendon reflexes will be hyperactive.

A sign to be concerned about when infusing IVPB Mg+ is an onset of absent DTR's. This is a sign of hypermagnesemia. Monitor DTR's.

(paragraph 2) Ca Gluconate is used when K+ is extremely high – it helps settle heart and protects from lethal arrhythmias. Dextrose with Insulin and sodium bicarbonate can be used to push K+ from intravascular space to intracellular space. These meds are used for more critically high K+; Kayexalate can also be used – given oral or rectal; causes K+ to be excreted via stool – kayexalate causes diarrhea

Ca Gluconate can also be given IV slow for hypocalcemia – Ca Gluc needs to be monitored – place on heart monitor and monitor vital signs

(paragraph 3) Remember, Low or high sodium think brain. Low Salty was low – lower than 120. His bad headache and confusion were showing signs of cerebral edema. In the ER they put in a CVAD and gave 3% saline IV solution (hypertonic) to pull fluid from cells into extravascular space. A catheter was placed for strict I & O.

(paragraph 4) D5W would never be used on any patient with cerebral edema, head injury, or sodium imbalance because it is a hypotonic fluid and would causes cerebral cells to swell. With sodium imbalances should keep patient calm and quiet, monitor LOC, neuro checks

(paragraph 5) When potassium gets too low, everything is slow. Heartrate drops (bradycardia), bowel sounds are faint or absent which can be a paralytic ileus, and the torsades de pointes dysrhythmia.

FYI – with hyperkalemia more concerned about lethal dysrhythmias

(paragraph 6 & 7) **Lasix is a potent diuretic** – K+ must be monitored because it increases urination and relieves excess fluid from the body. This can lead to depletion of K+. With loop diuretic, Lasix) K+ supplements may be needed. Monitor electrolyes closely with diuretics, especially Lasix. A patient on oral K+ should always be on K+ supplements. (don't give K+ on empty stomach). If hypokalemia occurs while a patient is on digoxin, it will cause dig toxicity. Keep patient on I & O and weigh daily so we know kidneys are working and diuretic is getting rid of fluid (I & O, weight, and BP are necessary to monitor fluid balance. Do not push Lasix fast – will drop BP and can cause cardiac dysrhythmias – a side effect of Lasix is ringing in the ears . RESPECT LASIX

(paragraph 8) SIADH causes retention of too much water so sodium gets diluted = hyponatremia

(high ADH, low Na+) excess fluid can raise BP; poor urine output (oliguria) risk for seizures

Treatment is fluid restriction, diuretics to help get rid of fluid and sodium back in range; If sodium is critically low, hypertonic saline such as 3% saline IV crystalloid

(paragraph 9 & 10) DI – ADH is low, Na+ is high; polydipsia and polyuria are classic s/s; so much urine is being peed out puts risk for DEHYDRATION/hypovolemic shock – very difficult to keep enough water intake to balance the water loss Treatment – replace ADH = Vasopressin/DDAVP

(paragraph 11) Calcium produced by parathyroid – must have 3 things intact; a working parathyroid gland, calcium and Vitamin D to keep calcium balanced. If not enough Vitamin D or calcium intake and hypoparathyroidism, risk for hypocalcemia (must have vitamin D for calcium absorption)

Calcium = bones, blood clotting, and heart beat (3 B's) so monitor for these when calcium is high or low

Corticoids (steroids) break down bone = bone loss = osteoporosis; fragile bones increase risk for fractures – move patient slowly and carefully

(FYI) if there is a hyper parathyroid (hyperparathyroidism and bone malignancy = hypercalcemia) main causes

Hypercalcemia – stones, bones, abdominal moans – kidney stones, painful bones, constipation

(paragraph 12) Aldosterone = sodium and water retention – released when low extravascular volume; part of RAAS) high aldosterone = low K+; low aldosterone = high K+ (since aldosterone causes sodium retention, K+ gets excreted

(paragraph 13) kidneys produce calcitriol which is vitamin D; if renal failure = no calcitriol – monitor for hypocalcemia (need vitamin D for calcium absorption) we can get Vitamin D from the sun too