Fluid & Electrolyte Emergencies

1- All of the following are associated with an increase difference between the calculated and measured serum osmolality (Osmolar gap) EXCEPT:

a. An ethanol level of 200 mg %
b. Administration of 100 grams of mannitol
c. Hyperglycemic non-ketotic coma
d. Severe ketoacidosis

2- All of the following may result in changes in the concentration of ionized calcium EXCEPT:

a. Decreased serum albumin
b. Hyperventilating
c. Excessive parathyroid hormone
d. Vitamin D intoxication

3- Causes of an anion gap acidosis include all of the following EXCEPT:

a. Salicylate poisoning
b. Isopropyl alcohol ingestion
c. Uremia
d. Seizures

4- An elevated anion gap (> 16 mEq/dL) and an elevation of the osmolal gap (>10 Osm/dL) may be seen in all of the following EXCEPT:

a. Uremia
b. Ethanol intoxication
c. Methanol poisoning
d. Diabetic ketoacidosis

5- Physiologic compensation for metabolic acidosis occurs through all of the following mechanisms EXCEPT:

a. Persistent vomiting
b. Pulmonary excretion of CO2
c. Increased renal H excretion
d. Increased renal bicarbonate losses

6- In human studies and experimental animal models, central pontine myelinolysis has been associated with all of the following EXCEPT:

a. Rapid correction of symptomatic hyponatremia (less than 24 hours duration)
b. Correction of hyponatremia longer than 2 days duration at a rate greater than 0.6 mEq/L/hour
c. Correction of hyponatremia longer than 2 days duration at a rate greater than 25mEq over 48 hours
d. Correction of hyponatremia longer than 24 hours duration at a rate greater than 2.5mEq/hour

7- An 80 year-old woman is found unconscious in her unair-conditioned Houston apartment in August. Her serum sodium is 185mEq/L. BP is 60 by palpation, PR 130. the most appropriate fluid regimen for her initial resuscitation is:

a. D_5W at 500mL/hour
b. D_5/.45 NS at 250mL/hour
c. NS or lactated Ringer's solution, one liter in the first hour
d. D_5/.33 NS at 500mL/hour

8- A 60-year-old man with a history of CHF presents to the ED complicating of pedal edema. His mental status is clear. BP is 120/80, PR 80. Lungs are clear, neck veins distended. Serum sodium is 105mEq/L. of the following therapies. Which his the most appropriate?

a. Infusion of 30% NS at 50mL/hour and concomitant administration of furosemide.
b. Infusion of NS at 200mL/hour with concomitant administration of furosemide.
c. Water restriction
d. Administration of 40mg of furosemide intravenously every hour until the serum sodium is normal

9- A 2-year-old child been vomiting for 6 days. In the ED she is listless, with a pulse of 180 and capillary refill > 4 seconds. Her weight is 10 kg. The serum sodium is 100mEq/L. The most appropriate initial therapy is:

a. Infusion of 3% NS at 1mL/kg/hour and concomitant administration of furosemide
b. Infusion of 3% NS at 1mL/kg/hour
c. A rapid infusion of NS at 20 mL/kg
d. D_5 /.45 NS at 125mL/hour

10- Of the following clinical scenarios, Which patient has the most urgent need for rapid potassium replacement?

a. A4-year-old with persistent vomiting, metabolic alkalosis and potassium of 3.0mEq/liter
b. A 56-year-old woman taking a diuretic and Digoxine, with a serum potassium of 3.0 mEq/liter
c. A 22-year-old IDDM with an arterial pH of 6.9 and serum potassium of 3.0mEq/liter
d. A 45-year-old man with delirium tremens and a serum potassium of 3.0mEq/liter

11- A 60-year-old man presents with confusion, polypro and a serum calcium of 16mg/dL. Of the following therapies, which is the least appropriate?

a. NS IV at 500mL/hour
b. Salmon calcitonin 4U/kg IM
c. Solu-Medrol 100mg IV
d. Vitamin D 25,000 units IM

12- A healthy 17-year-old woman suffers a cardiac arrest during an infusion of magnesium sulfate for treatment of eclampsia. In addition to the initiation of CPR, the most appropriate initial treatment is:

a. Immediate hemodialysis
b. IV infusion of 1 gram calcium chloride
c. IV infusion of 140mEq of sodium bicarbonate
d. IV infusion of 10mEq of potassium chloride

13- The most important cause of morbidity and mortality in near-drowning is:

a. Hypothermia
b. Metabolic acidosis
c. Hemolysis
d. Hypoxia