

Fluids and Electrolytes MCQs

1. Which is incorrect with regards to the fluid and its content?

- a) Normal Saline – 150mmol Na⁺/L
- b) Hartmans – 131mmol Na⁺/L
- c) Hartmans – 131mmolCl⁻/L
- d) D5W- 50gm glucose/L
- e) Hartmans- 5 mmol K⁺/L

2. Which is not a possibility in the ECG of a pt with hypokalemia?

- a) prolong PR interval
- b) prominent U waves
- c) T wave flattening
- d) Prolonged QT interval
- e) T wave inversion in praecordial leads

3. Which is not a cause of hypokalemia?

- a) insulin administration
- b) adrenaline infusion
- c) alkalosis
- d) toluene toxicity
- e) digoxin OD

4. Which of the drugs below are not associated with hypokalemia?

- a) loop diuretics
- b) corticosteroids
- c) gentamicin
- d) amiloride
- e) theophylline

5. Which of the following is not a symptom of hypokalemia?

- a) ileus
- b) constipation
- c) muscle weakness
- d) paralysis
- e) seizures

6. Which contains the largest amount of K⁺?

- a) two Slow K tablets
- b) 2 chlorvescent tablets
- c) 15ml of Kayciel
- d) one gram intravenous KCL
- e) a banana

7. A rise in the pH by 0.1 causes what decrease in serum K⁺?

- a) 0.1 mEq/L
- b) 0.25 mEq/L
- c) 0.5mEq/L
- d) 0.7mEq/L
- e) 1.0mEq/L

8. Which does not shift K⁺ into cells?

- a) insulin
- b) dextrose
- c) NaHCO₃
- d) Salbutamol
- e) resonium

9. What is seen earliest in an ECG of hyperkalemia?

- a) Sine wave
- b) Peak T wave
- c) Flattened p wave
- d) QRS widening
- e) AV dissociation

10. To diagnose SIADH as the cause of hyponatremia which must not be present?

- a) hypovolemia
- b) hypotonicity
- c) no cardiac/renal/ hepatic failure
- d) urine osmolality $>100\text{mOsm/kg}$
- e) urinary Na $>20\text{ mmol/ml}$

11. Which statement is incorrect?

- a) hyperlipidaemia can cause an artificially low Na⁺
- b) if the hyponatremia is known to be of less than 48 hours duration it can be corrected quickly
- c) in chronic hyponatremia, the Na⁺ should not be raised by more than 0.5mmol/l/hr
- d) if the Na⁺ level is raised too quickly in a pt with chronic hyponatremia it causes an increase in ICP
- e) central pontine myelinolysis is caused when hypernatremia is corrected too quickly

12. Which neoplasm is not characteristically associated with SIADH?

- a) mesothelioma
- b) bronchogenic carcinoma
- c) breast
- d) prostate
- e) bladder

13. Which drug is not well known to cause hyponatremia?

- a) sertraline
- b) amitriptyline
- c) ecstasy
- d) carbamazepine
- e) roxithromycin

14. With regards to hypernatremia which is incorrect?

- a) it should not be corrected greater than 0.5mmol/L/hr
- b) is usually associated with inadequate water intake
- c) Normal Saline should not be used if the pt is hypovolemic and hypotensive
- d) If associated with hypervolemia then furosemide should be used
- e) It is clinically manifest by primarily neurological effects

15. With regards to Calcium which statement is incorrect?

- a) the normal correct range is 2.1-2.5
- b) the ionized correct range is 1.14-1.3
- c) to correct for the low albumin add 0.1 to the total calcium for every 4 the albumin is below 36
- d) the ionized calcium increases by 0.05 for every 0.1 drop in pH
- e) calcium chloride has less elemental calcium than calcium gluconate

16. What is not a cause of hypercalcemia?

- a) post prandial measurement
- b) tuberculosis
- c) lung Ca
- d) hypomagnesemia
- e) renal failure

17. Which is incorrect with regards to hypocalcemia?

- a) it causes QT prolongation
- b) treatment with calcium may not work if magnesium is not given as well
- c) i.v administration of calcium requires cardiac monitoring
- d) it is seen in pancreatitis
- e) hyperventilation produces tetany by causes a fall in the total body calcium

18. Which is not true of hypomagnasemia?

- a) it increases SA node automaticity
- b) it causes pre eclampsia
- c) it prolongs the QT increasing the risk of Torsades
- d) it is associated with a 2-3 times increased risk of AF and SVT post AMI
- e) symptoms include weakness, lethargy, and poorly controlled AF despite adequate digoxin

19. Which is not true with regards to hypermagnesemia?

- a) it is nearly always seen in renal failure
- b) it causes nausea, vomiting, loss of deep tendon reflexes, drowsiness and hypotension
- c) it causes hypocalcemia
- d) if an overdose is taken, Calcium should be given as it is direct antagonist of magnesium
- e) it causes widening of the QRS

20. Which equation is incorrect?

- a) anion gap = $(\text{Na}^+ + \text{K}^+) - (\text{Cl}^- + \text{HCO}_3^-)$
- b) calculated serum osmolality = $2(\text{Na} + \text{urea} + \text{glucose})$
- c) $\text{paO}_2 = \text{plO}_2 - \text{paCO}_2/0.8$
- d) the expected CO_2 in metabolic acidosis = $1.5 \times \text{HCO}_3^- + 8$
- e) the expected CO_2 in metabolic alkalosis = $0.9 \times \text{HCO}_3^- + 9$

21. Which statement is incorrect?

- a) the normal Aa gradient is $< \text{age}/4$
- b) in respiratory alkalosis, for every drop of 10mmHg of pCO_2 , the HCO_3^- drops 1 mmol/L acutely
- c) in chronic respiratory alkalosis, for every drop of 10mmHg of pCO_2 , the HCO_3^- drops 2mmol/L
- d) in acute respiratory acidosis, for every 10mmHg rise in pCO_2 , the HCO_3^- rises 1mmol/L
- e) in chronic respiratory acidosis, for every 10mmHg rise in pCO_2 , the HCO_3^- rises 2mmol/L

22. which does not cause a high osmolar gap, increased anion gap metabolic acidosis?

- a) methanol
- b) ethanol
- c) ethylene glycol
- d) acetone
- e) chloral hydrate

23. Which agent below does no cause an increased anion gap metabolic acidosis?

- a) acetazolamide
- b) paraldehyde
- c) iron
- d) aspirin
- e) carbon monoxide inhalation

24. Which condition can be fully compensated for with regards to pH?

- a) respiratory acidosis
- b) respiratory alkalosis
- c) metabolic acidosis
- d) metabolic alkalosis
- e) none of the above

25. Which does not cause a metabolic alkalosis?

- a) vomiting
- b) diarrhoea
- c) loop diuretics
- d) thiazide diuretics
- e) corticosteroids

26. The normal anion gap is

- a) <7
- b) <12
- c) <18
- d) <22
- e) <30

27. Which is NOT a cause of normal anion gap metabolic acidosis?

- a) acetazolamide
- b) pancreatic fistula
- c) diarrhoea
- d) high dose corticosteroids
- e) renal tubular acidosis

28. Which would you give to reverse streptokinase?

- a) cryoprecipitate
- b) platelets
- c) factor VIII concentrate
- d) DDAVP
- e) Anti thrombin III concentrate

29. Which is the first choice agent to give to a patient with Haemophilia A who has moderate factor deficiency and a retroperitoneal bleed?

- a) cryoprecipitate
- b) FFP
- c) Factor VIII concentrate
- d) Factor IX concentrate
- e) DDAVP

30. Which is not a potential complication of a massive blood transfusion?

- a) hyperkalemia
- b) hypercalcemia
- c) hypothermia
- d) hypernatremia
- e) coagulopathy

31. Which statement is incorrect with regards to blood products?

- a) a bag of FFP contains 180 ml
- b) FFP must be ABO compatible
- c) Platelets must be ABO compatible
- d) A bag of packed cells is 300 ml
- e) 50 units of platelets should raise the platelet count by 5

32. Which blood type can be given to a patient who is blood group O?

- a) A
- b) B
- c) AB
- d) O
- e) All of the above

33. What does not cause impaired accuracy of the pulse oximeter?

- a) ambient light
- b) carboxyhaemoglobin
- c) methaemoglobin
- d) hypothermia
- e) xray beams

- 1)C 2)D 3)E 4)D 5)E 6)B 7)C 8)E 9)B 10)A 11)E 12)C
13)E 14)C 15)E 16)D 17)E 18)B poor controlled AF is due to hypokalemia which cannot be reversed
if hypomagnasemic
19)C 20)B 21)E 22)E 23)A 24)B 25)B 26)C 27)D 28)A 29)C 30)B
31)C 32)D 33)E