

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 not 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