

July 2012– Chemical pathology

CPD questionnaires must be completed online via www.cpdjournals.co.za
After submission you can check the answers and print your certificate.

APPROACH TO ACID-BASE DISORDERS – A CLINICAL CHEMISTRY PERSPECTIVE

1. Which one does not cause an elevation in the anion gap?
 - A. Lactic acidosis
 - B. Renal failure
 - C. Diabetic ketoacidosis
 - D. Severe hyperphosphataemia
 - E. Severe hypoalbuminaemia.
2. Which one of the following causes a chloride-responsive metabolic alkalosis?
 - A. Cushing's syndrome
 - B. Pyloric stenosis
 - C. Conn's syndrome
 - D. Excessive ingestion of liquorice
 - E. Gitelman syndrome.

GLOMERULAR FILTRATION RATE (GFR) AND ESTIMATION OF THE GFR (EGFR) IN ADULTS

3. True (A) or false (B):
Creatinine levels in serum are used to estimate GFR.
4. True (A) or false (B):
Creatinine is reabsorbed in the renal tubules.

PROSTATE SPECIFIC ANTIGEN: A USEFUL BUT LIMITED MARKER FOR PROSTATE CANCER

5. Pre-analytical factors which may increase plasma PSA levels include (choose the *incorrect* answer):
 - A. DRE
 - B. Ejaculation
 - C. Bicycle riding
 - D. Finasteride therapy
 - E. Prostate massage.
6. A 66-year-old man presents to his urologist 15 days after radical prostatectomy. His pre-operative serum PSA is 100 ng/ml. A repeat test is requested. If the half-life of PSA is 3 days, what would be the expected PSA level at this stage of presentation if treatment is successful?
 - A. 25
 - B. 12.5
 - C. 6.3
 - D. 3.1
 - E. Undetectable.

THYROID DISEASE: THYROID FUNCTION TESTS AND INTERPRETATION

7. Choose the incorrect statement regarding TSH:
 - A. Serum TSH normally exhibits a diurnal variation with a peak shortly after midnight

- B. An abnormal TSH is the first abnormality to appear in thyroid disease
 - C. TSH monitoring alone is sufficient to monitor hypothyroid patients starting treatment
 - D. TSH is diagnostically superior to FT4
 - E. Dopamine can suppress TSH release.
8. Choose the correct statement regarding FT4:
 - A. Current FT4 assays are immune to interference
 - B. FT4 has twice the biological activity of FT3
 - C. FT4 testing is more informative than total T4 testing
 - D. FT4 reference intervals are method dependent
 - E. Only 1% of total T4 is free.

ESSENTIAL LABORATORY KNOWLEDGE FOR THE CLINICIAN

9. True (A) or false (B):
Antibody interference may cause spuriously increased or decreased concentrations in peptide hormones measured by immunoassay.
10. Choose the correct answer:
The high-dose hook effect:
 - A. Occurs in sandwich assays
 - B. Gives falsely high levels of the measured analyte
 - C. Never occurs in the measurement of alpha-fetoprotein (AFP)
 - D. Cannot be confirmed or excluded when an analyte is measured
 - E. Occurs because of antibody interference.

COST-EFFECTIVE UTILISATION OF BASIC BIOCHEMICAL LABORATORY INVESTIGATIONS IN PRIMARY CARE

11. In the diagnosis of iron deficiency anaemia, the following is correct (choose one):
 - A. Serum ferritin is always low in iron deficiency anaemia
 - B. The MCV is raised in iron deficiency anaemia
 - C. A low MCV is always due to iron deficiency
 - D. A serum ferritin above 100 ng/ml excludes iron deficiency
 - E. A low MCV is diagnostic of iron deficiency anaemia.
12. The following is true of liver function tests (choose one):
 - A. A raised GGT is always due to alcohol
 - B. Gilbert's syndrome results in a raised conjugated bilirubin
 - C. A raised ALP with normal GGT indicates possible bone disease
 - D. Mildly raised transaminases can be disregarded
 - E. A raised ALP and raised GGT indicate possible bone disease.

PRE-DIABETES AND THE METABOLIC SYNDROME

13. True (A) or false (B):

The HOMA index is a surrogate marker of insulin resistance.

14. True (A) or false (B):

Cut-offs for waist circumference used to diagnose the metabolic syndrome can be applied to all populations.

VITAMIN D IN CLINICAL PRACTICE

15. Regarding the physiology of vitamin D which one is the correct statement?

- A. 1,25-dihydroxyvitamin D decreases the expression of bone alkaline phosphatase
- B. Vitamin D deficiency has been implicated in the pathophysiology of diabetes mellitus
- C. Vitamin D decreases antimicrobial action against intracellular organisms
- D. Increased vitamin D levels have also been associated with hypertension
- E. Vitamin D decreases gastrointestinal absorption of phosphate.

LABORATORY TESTS IN THE DIAGNOSIS OF CYSTIC FIBROSIS

16. Identify the false statement:

- A. CFTR stands for cystic fibrosis transmembrane conductance regulator protein
- B. In South Africa, population screening for CF is not currently performed

C. Sweat tests should never be performed on babies under 48 hours of age

D. Conductivity measurements ≥ 40 mmol/l should be confirmed with quantitative sweat chloride determination

E. Faecal elastase can be measured to assess pancreatic exocrine function.

17. The following pathology can cause a false negative sweat test (choose one):

- A. Eczema
- B. Oedema
- C. Glycogen storage disease
- D. Untreated hypothyroidism
- E. Untreated Addison's disease.

INVESTIGATION OF IMMEDIATE-ONSET IGE-MEDIATED FOOD ALLERGY

18. True (A) or false (B):

Recombinant Ara h 2_rsIgE can distinguish patients with true peanut allergy from those who are sensitised but clinically tolerant to peanuts.

TROPONINS AND ACUTE CORONARY SYNDROME

19. True (A) or false (B):

An increased cTn level above the reference range is a definitive diagnosis of acute coronary syndrome (ACS).

20. True (A) or false (B):

Renal failure is one of the non-cardiac causes of an elevated cTn.