

Biochemistry past year's questions.

Q1) A random blood sample for GH assessment in a suspected deficiency state is useless because it is commonly undetectable , so there are several " tricks " to collect a blood sample for GH assessment , all are true except

- A. Sampling before exercise.
- B. frequent sampling during sleep
- C. sampling 1 hour after going asleep
- D. sampling during an insulin induced hypoglycemia
- E. stimulation with arginine

Answer : A

Q2) ACTH stimulation test, all are true except

- A. used in the diagnosis of primary and secondary adrenal insufficiency
- B. the 250 microgram tetracosactrin injection should be given in the early morning
- C. relies on ACTH dependent adrenal atrophy in secondary adrenal failure
- D. normally after 30 minutes the blood cortisol should be above 550 nmol/ L

Q3) Insulin tolerance test, all are true except

- A. used in the assessment of hypothalamic pituitary adrenal axis
- B. contraindicated in ischemic heart disease and epilepsy
- C. the aim of the test is to produce signs of hypoglycemia with a glucose level below 2.2 mmol/ L
- D. we should take serial blood samples of glucose, GH and cortisol
- E. the usual dose used in the test is NPH insulin 0.15 u/kg given subcutaneously

Q4) Water deprivation test for a suspected diabetes insipidus , all are true except

- A. it is used in the diagnosis of diabetes insipidus (DI)and to differentiate between cranial and nephrogenic DI.
- B. there is should be no coffee, tea or smoking on the test day
- C. The test should be stopped if the patient loses 3% of his body weight
- D. when trying to differentiate DI from compulsive water drinking, DDAVP is useful
- E. if the initial urinary osmolality is 700 mosl/ kg the nthe test should be stopped and DI is excluded

Q5) Nonspecific biochemical abnormalities in thurotoxicosis , all are true except

- A. raised alkaline phosphatase
- B. raised ALT and AST
- C. hypercalcemia is usually seen in 50 % of cases
- D. glycosuria
- E. raised gamma GT in the absence of enzyme-inducing drugs or alcoholism

Q6) Biochemical findings that are useful in the assessment of hypothyroidism, all are true except

- A. high serum LDH and CPK
- B. high cholesterol and triglycerides
- C. macrocytic anemia
- D. high serum T3 level
- E. rasied TSH

Q7) Congenital adrenal hyperplasia, all are true except :

- A. the commonest cause is 21 alpha hydroxylase deficiency
- B. all cases are autosomal recessive
- C. causes ambiguous genitalia in females and precocious pseudopuberty in males
- D. 11 beta and 17 alpha hydroxylases are associated with hypotension

E. the condition can be prevented by appropriate prenatal diagnosis and giving dexamethason to the pregnant mother

Q8) MEN type I and type II , all are true except :

- A. due to mutation in MENIN gene on chromosome 11 in type
- B. hypercalcemia is the commonest presenting feature in type II
- C. family history of one relevant endocrine tumor may be present
- D. pheochromocytomas in type II are bilateral in 70% of cases
- E. carcinoid syndrome is uncommon in type I

Q9) What cell type secretes ACTH?

- a. Lactotropic cells
- b. Thyrotropic cells
- c. Somatotropic cells
- d. Corticotropic cells
- e. Gonadotropic cells

Answer: d

Q9) In which of the following effects are cortisol and growth hormone against each other the most

Answer: In their effect on the protein of muscles

Justification: Cortisol results in the mobilization of proteins from muscles to increase gluconeogenesis while the effect of growth hormone on muscle protein is anabolic.

Q10) Which of the following demonstrates paracrine secretion?

Answer: Somatostatin and glucagon

Q11) Bromocriptine is used in some cases of infertility. Its ability to resolve the infertility is by

Answer: Inhibiting prolactin secretion

Q12) Ultralente insulin is a:

- a. Short term preparation



- b. Long term preparation
- c. Ultra-short term preparation
- d.

Answer: Long term preparation

Q13) Which of the following is associated with a deficiency of aldosterone?

Answer: Increased Na⁺/K⁺ ratio in the urine

Q14) Which of the following hormones doesn't utilize cAMP in its signaling?

- a. Epinephrine in its effect on Beta-adrenergic receptors
- b. Glucagon
- c. PTH
- d. Somatostatin

Answer: d. Somatostatin

Q15) As glucose enters the pancreatic beta cell which of the following isn't part of the mechanism by which insulin is released?

Answer: cAMP

Q16) Which of the following statements describes the effect of calcium in controlling the PTH secretion as it binds to the response element on the cells in the parathyroid?

Answer: Calcium results in a increase in intracellular calcium when ECF calcium increases

Q17) Which of the following contributes to the lack of conversion of progesterone into androgens in granulosa cells?

Answer: Lack of 17-hydroxylase/lyase



Q18) An 8 year old child believes that he is short in stature. His growth hormone levels are on the borderline of normal. His bone growth and mental growth are normal with respect to children in the same age group. A problem with which of the following is likely to be the cause of his problem?

- a. Insulin
- b. IGF-1
- c.

Answer: ?

Q19) Which of the following statements is correct about thyroid hormones?

Answer: T4 is bound 10x more strongly to the protein carrier than T3

Q20) Which of the following isn't true about calcitriol

Answer: It inhibits calcium reabsorption in the kidneys

Q21) De-iodination

- 1. Of T4 can result in the formation of rT3
 - 2. Of T4 occurs peripherally to produce T3
 - 3. Of MIT and DIT yields thyronine
- a. 1 and 2 are correct
 - b. 2 and 3 are correct
 - c. 1, 2 and 3 are correct

Answer: a. 1 and 2 are correct



Q22) Vitamin D in the form 1,25-dihydroxycholecalciferol (1,25(OH)₂D₃) is made in:

Answer: Kidneys

Q23) cAMP is to adenylatecyclase as

- a. GTP is to G-binding protein
- b. Ca²⁺ is to calmodulin
- c. DAG is to protein kinase C

Answer: ?

Q24) Which of the following describes best the effect of insulin?(there was a big table with arrows indicating increase and decrease in the question)

Answer: Decreased glycogenolysis, decreased 'can't remember what', increased glucose uptake

Q25) Which of the following isn't true

Answer: most of the secretion of the thyroid is T₃

Q26) Which of the following statements is incorrect?

Answer: The absence of 18-hydroxylase and the presence of 11-hydroxylase results in aldosterone production