

Friday, 3rd of July 2009 (8³⁰-11.³⁰)

University of Buea

Faculty of Health
Sciences



MED304

Programme in
Medicine

(SECTION ONE:

GENERAL ENDOCRINOLOGY) (20 Marks)

1-14: The statement is followed by 5 statements of which one is false: Select the wrong description.

- (1) Hormones: (a) are quantified by radioimmunoassay (b) circulate in blood (c) have target tissue (d) are enzymes (e) are secreted by endocrine glands
- (2) Hormones can be classified as (a) peptides (b) steroids (c) amino acid derivative (d) amines (e) enzymes.
- (3) Hormones functions are regulated by (a) up-regulation (b) down-regulation (c) on-regulation (d) negative feedback (e) positive feedback.
- (4) Mechanism of action of hormones involves (a) second messenger (b) adenylyl cyclase (c) ATP (c) IP_3/Ca^{2+} (e) cAMP.
- (5) Hormones of the anterior hypophysis include (a) ADH (b) TSH (c) FSH (d) LH (e) GH.
- (6) GH is required for (a) normal growth (b) reproduction (c) protein synthesis (d) carbohydrate metabolism (e) organ growth.
- (7) Prolactin (a) is for breast development (b) increases gestation (c) initiates lactogenesis (d) secreted tonically (e) mediated by dopamine.
- (8) ADH (a) is secreted by adenohypophys (b) is secreted by neurohyophys (c) is responsible for osmoregulation (d) regulated by serum osmolarity (e) acts on the kidney tubules.
- (9) Oxytocin (a) is secreted by adenohypophys (b) is secreted by neurohyophys (c) is responsible for milk ejection (d) acts on lactation breast (e) initiates parturition.
- (10) Thyroid hormones (a) include T_4 (b) include T_3 (c) include TSH (d) are amino-acide derivative hormones (e) are derived from tyrosine.
- (11) Thyroid hormones (a) increases Na^+-K^+ Pump activity (b) increases O_2 consumption (c) increases BMR (d) increases cardiac output (e) increases Ca_{2+} activity.
- (12) Hormones of adrenal cortex include (a) estrogens (b) aldoesterone (c) cortisol (d) androstenedione (e) corticosterone.
- (13) Islets of Langerhans (a) contain α -cells (b) contain β -cells (c) contain λ -cells (d) secrete somatostatin (e) secrete somatomedins.
- (14) Calcium homeostasis involves (a) muscles (b) bones (c) kidney (d) intestines (d) action of PTH, calcitonin and VitD.

Instructions: Each of the numbered items or incomplete statements is followed by answers or by completions of the statements. Select the ONE lettered answer or completion that is BEST in each case

- (15) Which of the following hormones acts on its target tissues by steroid hormone mechanism of action? (a) Thyroid Hormone (b) PTH (c) ADH (d) β_1 adrenergic agonists (e) Glucagon
- (16) Which of the following hormones originate in the anterior pituitary? (A) GnRH (B) GhRh (C) TSH (D) Oxytocin (E) ADH
- (17) Which of the following inhibit the secretion of GH by the anterior by the anterior pituitary? (A) GhRH (B) GH (C) Somatomedins (D) Hypoglycemia (E) Sleep
- (18) Selective destruction of zona glomerulosa of the adrenal cortex would produce a deficiency of which hormone? (A) Cortisol (B) Aldosterone (C) Testosterone (D) Androstenedione (E) Hehydrpepiandrosterone.
- (19) Which of the following explains the suppression of lactation during pregnancy? (A) Blood prolactin levels are too low for milk production to occur
(B) Human placental lactogen levels are too low for milk production to occur
(C) The fetal adrenal gland does not produce sufficient estriol
(D) Blood levels of estrogen and progesterone are high
(E) The maternal anterior pituitary is suppressed
- (20) Which of the following results from the action of PTH on the renal tubules?
(A) Inhibition of 1α -hydrolase
(B) Stimulation of Ca^{2+} resorption in the distal tubules
(C) Stimulation of phosphate reabsorption in the proximal tubule
(D) Interaction with receptors on the luminal membrane of the proximal tubular cells.
(E) Decrease urinary excretion of cAMP
- (21) Which of the following decreases the conversion of 25-hydrocholecalciferol to 1,25-dihydrocholecalciferol? (A) A diet low in Ca^{2+} (B) Hypocalcemia (C) Hyperparathyroidism (D) Hypophostamia (E) Chronic Renal Failure.
- (22) Which of the following hormones acts by an IP_3 - Ca^{2+} mechanism of action? (A) 1,25-dihydrocholecalciferol (B) Progesterone (C) Insulin (D) PTH (E) GnRH
- (23) Which of the following causes increased aldosterone secretion? (A) Decreased blood Volume (B) Administration of ACE Inhibitors (C) Hyperosmolarity (D) Hypokalemia (E) None of the above

Questions 24-26: (A) T_3 (B) T_4 (C) Diiodotyrosine (DIT) (D) TSH (E) Iodide (I) : Match each numbered description involving thyroid hormones with the correct substance.

- (24) Deiodination of this substance in the target tissues produces the most form of thyroid hormone
- (25) In Graves' disease, blood levels of this hormone will be decreased
- (26) Propylthiouracil can be used to reduce the synthesis of thyroid hormones in the hyperthyroidism because it inhibits oxidation of this substance.

Questions 27-30:(A)Insulin (B) Glucagon (C) Somatostatin (D) Pancreatic Lipase (E) Somatomedins

:Match each numbered description with the appropriate pancreatic secretary product.

- (27) Inhibits the secretion of both insulin and glucagons
- (28) Receptor has four subunits, two of which have tyrosine kinase activity
- (29) Secretion is inhibited by the other pancreatic hormones.
- (30) Mediates the effect of GH