

Endocrine/Reproduction
Teaching Learning Exam
April 30, 1999

1. Which of the following is (are) not true about hormonal transport proteins:
 - a. They increase hormonal metabolic clearance rate (MCR)
 - b. They enhance solubility
 - c. They act as a storage depot
 - d. They increase hormonal half-life
 - e. None of the above

- 2) Which of the following is (are) not (a) correct statement(s):
 - a. The concept of spare hormone receptors predicts an inverse relationship between hormone receptor number and cellular sensitivity to the hormone.
 - b. G protein mediated receptors have 6 transmembrane domains.
 - c. The main site of action of inositol triphosphate (IP3) in raising intracellular Ca^{2+} is the mitochondria.
 - d. a and b
 - e. a, b and c

- 3) Pomelanocortin (POMC) is a prohormone for:
 - a. LH
 - b. TSH
 - c. Prolactin
 - d. ACTH
 - e. None of the above

- 4) Potent inhibiting and releasing factors for prolactin are respectively:
 - a. Epinephrine and serotonin
 - b. CRH and ADH
 - c. Dopamine and TRH
 - d. Dopamine and ADH
 - e. Oxytocin and TRH

- 5) Oxytocin stimulates:
 - a. milk let-down
 - b. prolactin release
 - c. uterine contractions during pregnancy
 - d. a and c
 - e. a, b and c

- 6) Which of the following does not correctly describe the direct action of PTH:
- Increases Osteoclast activity
 - Increases Osteocytic osteolysis
 - Decreases production of 1- α -hydroxylase
 - a and b
 - b and c
- 7) The major effect of Calcitonin is to:
- increase osteoblast activity
 - decrease osteoblast activity
 - increase Ca^{2+} transport across the intestine
 - decrease osteoclast activity
 - increase plasma Ca^{2+}
- 8) A patient shows elevated plasma Renin-Angiotensin II, aldosterone and hypertension. This would be an example of:
- Diabetes insipidus
 - Secondary aldosteronism
 - Diabetes mellitus
 - Osteomalcia
 - Primary aldosteronism
- 9) In a male, expression of the gene for antimullerian hormone at the proper time is required for
- Absence of a uterus
 - Suppression of a cyclic pattern of gonadotropin secretion
 - Development of the spermatic cord
 - Development of a penis
 - Absence of the female pattern of enclosing each developing germ cell within a follicle.
- 10) Loss of Sertoli cell function would cause which of the following changes in plasma hormone concentrations?
- | | | | |
|----|---------------------------|---------------|----------------------|
| a. | Decreased testosterone | Increased FSH | Increased inhibin |
| b. | No change in testosterone | Increased FSH | Decreased inhibin |
| c. | Increased testosterone | Decreased FSH | No change in inhibin |
| d. | Decreased testosterone | Increased FSH | Increased inhibin |
| e. | Increased testosterone | Decreased FSH | Decreased inhibin |

- 11) Prostaglandins
- Present in the semen are secreted by the prostate
 - May be involved in sperm transport within both the male and female reproductive tracts
 - Exert a powerful inhibitory effect on uterine musculature
 - Are all derivatives of essential amino acids
 - Exert influences on the reproductive system.
- 12) Which of the following statements regarding hormone actions during pregnancy is correct?
- Human chorionic somatomannotropin (human placental lactogen) increases maternal responsiveness to insulin
 - Progesterone increases uterine contractility
 - Prolactin increases milk secretion
 - Human chorionic gonadotropin stimulates progesterone secretion by the corpus luteum.
 - Estradiol increases the firmness and tension of the pelvic ligaments to prevent rapid uterine expansion.
- 13) Which of the following statements concerning implantation is (are) correct?
- Implantation is accomplished by enzymatic activity of the trophoblastic layer of the blastocyst.
 - The endometrium at the site of implantation is converted into the nutrient-rich decidua.
 - Implantation occurs within 24hrs after fertilization
 - Both a and b above are correct
 - All of the above are correct.
- 14) Oxytocin
- Is a powerful uterine muscle stimulant
 - Is involved in a positive feedback cycle during parturition
 - Stimulates production of milk by the mammary glands
 - Both a and b are correct.
 - All of the above are correct.

- 15) Which of the following is true:
- a. the major tissues which are not dependent on insulin are the brain and liver
 - b. glucagon is secreted by alpha cells in response to a decrease in glucose
 - c. during fasting, tissues which are not dependent on glucose switch to fatty acids as their metabolic fuel
 - d. all of the above
 - e. a and b are true.
- 16) Epinephrine, cortisol and glucagon are "insulin antagonist" because
- a. they increase blood glucose
 - b. they increase the degradation of insulin and its clearance from the blood
 - c. they decrease insulin synthesis by the beta cells of the pancreas
 - d. they increase cAMP concentrations and thus, antagonize the action of insulin on cAMP generation
 - e. both b and d are correct
- 17) The antiinflammatory effects of glucocorticoids are due to all the following except:
- a. stabilization of lysosomal membranes
 - b. increased synthesis of prostaglandins
 - c. decreases in the permeability of capillary membranes
 - d. decreases in the number of t-lymphocytes
 - e. decreased phagocytosis by white blood cells
- 18) Which of the following are unlikely to be seen in a person with Cushings disease syndrome (excess cortisol secretion).
- a. gastric ulcers
 - b. fat deposition in the neck and trunk area
 - c. increased susceptibility to colds and infection
 - d. atherosclerosis
 - e. muscle hypertrophy
- 19) Uncontrolled diabetes can result in death. This is because:
- a. ketone bodies are used by brain cells causing their depolarization
 - b. glycoseuria causes dehydration
 - c. membrane proteins are glycosylated leading to coma
 - d. acidosis occurs due to excess lactic acid production
 - e. muscle wasting occurs due to utilization of amino acids for gluconeogenesis

- 20) Which does not occur during strenuous exercise?
- insulin secretion is inhibited by catecholamines
 - epinephrine stimulates lipolysis to provide fatty acids for energy
 - glycogenolysis provides the primary source of glucose
 - glucagon secretion is increased
 - cortisol stimulates gluconeogenesis
- 21) Insulin and glucagon act together to maintain glucose levels throughout the day. Which of the following is correct regarding the actions of these two hormones?
- insulin increases and glucagon decreases glycogen breakdown
 - insulin increases and glucagon decreases the storage of free fatty acids
 - insulin increases and glucagon decreases the uptake of amino acids into muscle
 - insulin levels increase and glucagon levels decrease in response to a protein meal.
 - somatostatin increases insulin and decreases glucagon levels in blood.
- 22) When insulin acts on cells, all but which of the following occurs?
- activation of a membrane associated tyrosine kinase
 - increased synthesis of insulin-like growth factor
 - increased numbers of glucose transport molecules in cell membranes
 - increased phosphorylation of glucose as it enters the cell
 - activation of the glycogen synthetase enzyme
- 23) Type 2 (non-insulin dependent) diabetes mellitus is characterized by each of the following EXCEPT:
- Insulin resistance.
 - Post-receptor defect.
 - Severe insulin deficiency due to autoimmune destruction of beta cells.
 - Increased risk of atherosclerosis
 - Microvascular complications, including blindness, neuropathy, renal failure.
- 24) Type 1 (insulin-dependent) diabetes mellitus is characterized by each of the following EXCEPT:
- Obesity.
 - Proclivity to ketoacidosis.
 - Severe insulin deficiency due to autoimmune destruction of beta cells.
 - Increased risk of atherosclerosis.
 - Microvascular complications, including blindness, neuropathy, renal failure.

- 25) IGF-I mediates growth hormones affect on
- a. growth of the long bones
 - b. protein synthesis in muscle
 - c. fat mobilization by adipose tissue
 - d. all of the above
 - e. a and b above
- 26) Diminished growth in a prepubertal individual could result from
- a. hyperglucorticoidism
 - b. untreated diabetes mellitus
 - c. malnutrition
 - d. all of the above
 - e. a and b above
- 27) Elevated levels of growth hormone would be seen in a normal individual if they had
- a. just fallen asleep
 - b. just finished a 1 hour period of vigorous exercise
 - c. not eaten for 2 hours
 - d. all of the above
 - e. a and b above
- 28) T3 in the circulation
- a. has a shorter half life than T4
 - b. mainly results from the peripheral conversion of T4 to T3
 - c. is about 50% in the free form
 - d. all the above
 - e. a and b above
- 29) If an average American were to halve their daily intake of iodide
- a. the TSH levels would rise
 - b. the thyroid hormone levels in the circulation would fall
 - c. they would exhibit significant goiter
 - d. none of the above

- 30) Supplementing a normal individual daily with an amount of thyroid hormone equivalent to the amount of thyroid hormone produced daily preceding supplementation would, after 6 months, result in the individual exhibiting
- a. significant weight loss
 - b. a hyperthyroid state
 - c. increased iodide uptake by the thyroid gland
 - d. none of the above

Answers

1 A 2 E 3 D 4 C 5 E 6 C 7 D 8 B 9 A 10 B 11 B 12 D 13 D
14 D 15 D 16 A 17 B 18 E 19 B 20 C 21 B 22 B 23 C 24 A 25 A 26 D
27 B 28 E 29 D 30 D