

## Adrenal glands

### 1. In which type of cells do pheochromocytomas originate?

- a) Adrenal epithelial
- b) Chromaffin
- c) Adrenal cortex
- d) Alpha-adrenergic

### 2. Why should patients with PCC be treated with sodium prior to surgery?

- a) High levels of norepinephrine inhibit the body's renin-angiotensin-aldosterone system, which results in a loss of fluid, which sodium can counteract.
- b) High levels of epinephrine greatly increase the risk of orthostatic hypotension, which results in a loss of fluid, which sodium can counteract.
- c) Sodium ions inhibit the secretion of norepinephrine by chromaffin cells, and a lack of norepinephrine can permanently damage the liver.
- d) Sodium is a key element in all alpha-adrenergic blocking drugs, which are necessary to prevent liver damage from norepinephrine.

### 3. Which of the following is NOT a symptom of pheochromocytoma?

- a) Heavy sweating
- b) Sudden headache
- c) Hypertension
- d) Lethargy

### 4. Which of the following statements about pheochromocytoma is FALSE?

Choose one

- e) Pheochromocytoma is an acetylcholine-secreting tumor
- f) It is a tumor composed of chromaffin cells
- g) The tumor is typically located in the adrenals

### 5. Pheochromocytomas may develop as a result of which of the following?

Choose one

- a) Germline mutations
- b) Mutations of the enzyme succinate dehydrogenase
- c) Familial multiple endocrine neoplasia types 2A and 2B
- d) Neurofibromatosis
- e) All of the above

### 6. Which of the following is a prominent feature of pheochromocytoma?

Choose one

- a) Cardiomegaly
- b) Retinopathy
- c) Hypertension
- d) Hypotension

### 7. Although pheochromocytomas can occur at any age, at what age does peak incidence occur?

Choose one

- a) Younger than 10 years
- b) Between 20 and 40 years
- c) Older than 50 years

### 8. True or False. Most cases (>50%) of pheochromocytoma are malignant.

Choose one

- a) True
- b) False

**9. Which of the following is not a characteristic of hyperaldosteronism?**

- a) hypokalemia
- b) hypernatremia acidosis
- c) high ratio of aldosterone to plasma renin activity
- d) hypertension

**10. Which of the following treatments for hyperaldosteronism would only be used in case of adrenal adenoma?**

- a) laparoscopic surgery
- b) idiopathic hyperplasia
- c) salt restrictive
- d) diet
- e) hyperkalemia diuretics

**11. Which of the following describes what effect aldosterone has on the distal tubule of the kidney's nephrons?**

- a) It causes sodium and potassium ions to be absorbed into the bloodstream, and water and hydrogen ions to be excreted into the urine. It causes sodium ions and water to be absorbed into the bloodstream, and potassium and hydrogen ions to be excreted into the urine.
- b) It causes sodium and hydrogen ions to be absorbed into the bloodstream, and water and potassium ions to be excreted into the urine.
- c) It causes hydrogen ions and water to be absorbed into the bloodstream, and sodium and potassium ions to be excreted into the urine.
- d) It causes potassium ions to be absorbed into the bloodstream, and water and hydrogen ions to be excreted into the urine.

**12. Which of the following causes of Cushing's syndrome does the phrase "Cushing's disease" specifically refer to?**

- a) Adrenal adenoma
- b) Pituitary adenoma
- c) Ectopic ACTH production
- d) Iatrogenic

**14. Which of the following hormones are produced by the adrenal cortex?**

- a) Aldosterone
- b) Epinephrine (adrenaline)
- c) Norepinephrine (noradrenaline)
- d) 5-DHEA
- e) Cortisol

**15. Which of the following statements best describes Cushing's syndrome?**

- a) Cushing's syndrome refers to a disease process caused by abnormally high levels of cortisol
- b) Cushing's syndrome refers to a disease process caused by abnormally low levels of cortisol
- c) Cushing's syndrome refers to a disease process caused by abnormally low levels of aldosterone
- d) Cushing's syndrome refers to a disease process caused by abnormally high levels of aldosterone

**16. What is the most common cause of Cushing's syndrome?**

- a) Pituitary adenoma
- b) Glucocorticoid treatment (iatrogenic)
- c) Ectopic ACTH production
- d) Adrenal adenoma

**17. Which one of the following statements best describes an Addisonian crisis?**

- a) Severe adrenal insufficiency resulting in dangerously low serum cortisol levels
- b) Dangerously high serum cortisol levels
- c) Severe adrenal insufficiency resulting in dangerously low serum testosterone levels
- d) Dangerously high levels of testosterone

**18. Which one of the following is the main function of aldosterone?**

- a) Decrease in blood volume
- b) Increase in blood volume

**19. Which of the following are symptoms of Addison's disease?**

- a) Moon face
- b) Fatigue
- c) Weight loss
- d) Weight gain
- e) Postural hypotension
- f) Striae
- g) Hyperpigmentation
- h) Diplopia

**20. Which of the following hormones are produced in the anterior pituitary gland?**

- a) Follicle stimulating hormone (FSH)
- b) Growth hormone (GH)
- c) Adrenocorticotrophic hormone (ACTH)
- d) Prolactin
- e) Thyroid stimulating hormone (TSH)
- f) Luteinizing hormone (LH)
- g) Vasopressin (Antidiuretic hormone)
- h) Oxytocin

**21. Which of the following statements regarding Cushing's syndrome is correct?**

- a) The incidence of Cushing's syndrome is distributed equally between sexes
- b) Men are more likely to develop Cushing's syndrome
- c) Women are more likely to develop Cushing's syndrome

**22. Which of the following statements correctly describes the pathophysiology of Cushing's disease?**

- a) Cushing's disease results from a benign adrenal adenoma secreting excess levels of cortisol.
- b) Cushing's disease results from a benign adrenal adenoma secreting excess ACTH. High levels of ACTH in turn cause increased production of cortisol from the adrenal cortex.
- c) Cushing's disease results from a benign pituitary adenoma secreting excess levels of cortisol
- d) Cushing's disease results from a benign pituitary adenoma secreting excess ACTH. High levels of ACTH in turn causes increased production of cortisol from the adrenal cortex.

**23. What is Addison's disease?**

- a) Addison's disease, is a long-term endocrine disorder in which the adrenal glands do not produce enough steroid hormones.

- b) Addison's disease involves the overproduction of androgens by the adrenal medulla.
- c) Addison's disease involves the overproduction of cortisol and aldosterone by the adrenal cortex
- d) Addison's disease involves the underproduction of androgens by the adrenal medulla.

**24. Which of the following is not a symptom of Cushing's syndrome?**

- a) Easy bruising
- b) Weight gain
- c) Acne
- d) Stretch marks
- e) Increased pigmentation of skin

**25. Which of the following hormones are stored in the posterior pituitary gland?**

- a) Oxytocin
- b) Prolactin
- c) Luteinizing hormone (LH)
- d) Follicle stimulating hormone (FSH)
- e) Adrenocorticotrophic hormone (ACTH)
- f) Vasopressin (antidiuretic hormone)
- g) Thyroid stimulating hormone (TSH)
- h) Growth hormone (GH)

**26. Which of the following does the adrenal cortex produce?**

- a) Cortisol
- b) Aldosterone
- c) Adrenaline
- d) Noradrenaline

**27. Which of the following are causes of Addison's disease?**

- a) Autoimmune destruction of the adrenal cortex
- b) Adrenoleukodystrophy
- c) Pyelonephritis
- d) Tuberculosis