

Examination Test (example)
Endocrinology 5th course

1. The principle of a negative feedback mechanism in Endocrinology means that the increased level of a hormone secreted by a peripheral endocrine gland can lead to:

- a) stimulation of the activity of hypothalamus
- b) suppression of the activity of hypothalamus**
- c) stimulation of the activity of anterior pituitary gland
- d) maintenance of the increased hormonal secretion by the peripheral endocrine gland

2 points

(1 correct answer out of 4 possibilities - 2 points)

2. On the secretion of which hormone(s) of the anterior pituitary gland, the hypothalamus has only an inhibitory effect?

- a) none**
- b) prolactin
- c) prolactin and GH
- d) LH and FSH

2 points

(1 correct answer out of 4 possibilities - 2 points)

3. Pituitary adenomas are called macroadenomas when their size is larger than:

- a) 20 mm
- b) 10 mm**

1 point

(1 correct answer out of 2 possibilities - 1 point)

4. The association of galactorrhea and amenorrhea is typical for:

- a) Sheehan syndrome
- b) prolactinoma**

1 point

(1 correct answer out of 2 possibilities - 1 point)

5. Is it possible to have the following laboratory test results - elevated levels of TSH and also increased levels of thyroid hormones - FT3, FT4?

- a) No, because the increased levels of FT3, FT4 by means of the negative feedback mechanism lead to suppression of TSH
- b) Yes, because the increased levels of FT3, FT4 by means of the negative feedback mechanism lead to stimulation of TSH
- c) Yes, because thyrotroph adenomas of the pituitary gland cause excess production of thyroid hormones**
- d) Yes, in peripheral thyroid hormone resistance**

2 points

(2 correct answers out of 4 possibilities – 2x1 points)

6. What are the symptoms of carpal tunnel syndrome in acromegaly?

- a) sweaty palms of the hands
- b) dry and peeling skin
- c) tingling and pain in the hands**
- d) warm and red skin of the hands

2 points

(1 correct answer out of 4 possibilities - 2 points)

7. Somatostatin analogues are used in the treatment of:

- a) Addison disease
- b) acromegaly**

c) hyperprolactinemia

d) pituitary dwarfism

e) pituitary gigantism

f) Cushing disease

g) diabetes insipidus

4 points

(multiple choice - x1 point for each correct answer)

8. When serum osmolarity increases, the secretion of is stimulated.

Answer: ADH

4 points

(open question - 4 points)

9. The diagnosis of is characterized by the constellation of hypercalcemia, hypophosphatemia and elevated levels of PTH.

Answer: Primary Hyperparathyroidism

4 points

(open question - 4 points)

10. In which patient the most likely diagnosis is secondary hyperparathyroidism?

a) a 58-year-old man with chronic kidney failure (chronic kidney disease)

b) a 69-year-old woman with parathyroid adenoma

c) a 56-year-old man with levels of magnesium 0.21 mmol/l

d) a 7-year-old patient with diabetes mellitus type 1

4 points

(question with increased difficulty - 1 correct answer out of 4 possibilities - 4 points)

11. Autoimmune hypoparathyroidism could be accompanied by:

a) cholelithiasis

b) complications after surgery

c) other autoimmune disorders

d) subacute De Quervain's thyroiditis

2 points

(1 correct answer out of 4 possibilities - 2 points)

12. Which hormone could be elevated in a patient with endemic goiter?

a) PTH

b) thyroxine

c) TSH

d) calcitonin

2 points

(1 correct answer out of 4 possibilities - 2 points)

13. Diabetes mellitus type 1 is characterized by :

a) absolute hypoinsulinemia

b) autoimmune destruction of beta cells in the islets of Langerhans

c) insulin resistance

d) association with other autoimmune disorders

3 points

(multiple choice - x1 point for each correct answer)

14. Impaired fasting glycemia is defined by elevated fasting plasma glucose concentration between the ranges:

a) 6,1-6,9 mmol/l

b) 7,1-7,9 mmol/l

1 point

(1 correct answer out of 2 possibilities - 1 point)

15. How long should the patient wait to start his/her meal after subcutaneous administration of rapid-acting conventional human insulin?

a) **25-30 min**

b) start the meal right after the injection

1 point

(1 correct answer out of 2 possibilities - 1 point)

16. Insulin mixtures contain:

a) **a combination of short-acting and intermediate-acting insulin**

b) a combination of two short-acting insulins

c) a combination of human insulin and insulin analogue

d) a combination of intermediate-acting insulins

2 points

(1 correct answer out of 4 possibilities - 2 points)

17. Arrange the following drugs in groups according to their mechanism of action:

Glibenclamide, Nateglinide, Metformin, Acarbose, Rosiglitazone, Gliclazide.

a) insulin secretagogues - **Glibenclamide, Nateglinide, Gliclazide.**

b) insulin sensitizers - **Metformin, Rosiglitazone**

c) alpha-glucosidase inhibitors - **Acarbose**

3 points

(multiple choice - 1 point for each correct answer)

18. Diabetic microangiopathy commonly attacks:

a) medium-sized blood vessels

b) **small blood vessels /d<2 mm/ - capillaries, arterioles and venules**

1 point

(1 correct answer out of 2 possibilities - 1 point)

19. Typical signs and symptoms of Cushing's disease are:

a) **hypertension**

b) hypotension

c) **centripetal fat distribution**

d) **stretch marks - striae**

e) hypoglycemia

f) hyperkalemia

g) **osteoporosis**

h) **hyperglycemia**

5 points

(multiple choice - x1 point for each correct answer)

20. Write down 4 adrenal gland disorders in which hypertension is a typical symptom.

4 points

(open question - 4 points)

21. Clinical Case

A 50-year-old patient had blurred vision in his right eye and peripheral vision loss in the same eye. He visited an ophthalmologist. During the examination bitemporal hemianopsia, well-defined for the right eye, and decrease in vision were found. The result after dilated fundus examination was normal. The patient was sent to an endocrinologist for assessment.

More signs and symptoms were reported - progressive headache for the last several years, asthenia-adynamia, arterial hypertension on treatment with different medications, thirst and frequent urination, weight gain, spinal pain, knee joint deformities, pain in the sural region of the legs. He had also dysphagia. The patient couldn't certainly tell if he had facial feature changes and enlarged hands and feet.

Physical examination - BMI - 30 kg/m², pale pink mucous membranes, skin - noticeably large pores, facial soft tissue hypertrophy, diastema, teeth imprints on the tongue. Thyroid gland -

enlarged I-B degree, with nodules in the right lobe, palpation - without pain. Lungs - pulmonary emphysema, decreased vesicular breathing, without rhonchi. Cardiovascular system - sinus rhythm, Fr - 80/min, RR-150/90 mmHg, quiet heart sounds. Abdomen - liver extended beyond the ribcage, palpation - without pain, without splenomegaly. Succussio renalis – (-), enlarged hands, arthropathy for the knee and hip joints, pes planus.

Questions:

1. According to this medical history the most likely diagnosis is:

- a) Cushing's disease
- b) primary hypothyroidism
- c) acromegaly**
- d) diabetes insipidus

10 points

2. Which hormone blood tests could verify the main diagnosis?

- a) ACTH and serum cortisol
- b) GH response to OGTT**
- c) ADH
- d) IGF1**
- e) TSH and FT4
- f) LH, FSH and testosterone

10 points

3. Which accompanying endocrine disorders should doctors look for in view of the following medical history?

Open question

Answer - **impaired glucose tolerance/ diabetes mellitus**

diabetes insipidus

goiter

thyroid dysfunction

20 points (4x5 points)

4. What are the possible treatment approaches to the main disease?

Open question

Answer - **transsphenoidal adenomectomy**

medical treatment with somatostatin analogues and/or dopamine agonists

telegamma therapy of the diencephalic region/ gamma knife radiosurgery

10 points

Total number of points - 50

The score obtained from the test points is transformed into a score on a scale based on the relative proportion of correct answers from the maximum possible.

According to the academic standard, the scale is:

≤ 60% - Poor (2),

60-70% - Average (3),

70-80% - Good (4),

80-90% - Very good (5),

> 90% - Excellent (6).