

Theme of the lesson: GENERAL ETIOLOGY AND GENERAL PATHOGENESIS OF ENDOCRINE GLANDS

Aim: to learn the main mechanisms of disorders of functional activity of endocrine glands, to be able to explain the disorders of central regulation of endocrine glands functioning and peripheral mechanisms of hormones' action.

Main questions:

1. Principles of regulation of endocrine glands activity. The role of central nervous system, hypothalamus, hormone-hormonal relations.
2. Hypophysial and parhypophysial ways of regulation. Principle of feedback.
3. Primary disorders of endocrine glands function.
4. Out-of-glandular (peripheral) forms of endocrine disorders.

Literature:

1. General and clinical pathophysiology/ Gozhenko A.I. et al. – Odessa National Medical University. – 2001. – P. 194-211
2. Pathophysiology/ Gozhenko A.I., Gurkalova I.P. - Odessa National Medical University. – 2003. – P. 302-317

CONTROL QUESTIONS

№№	Pointings to the tasks fulfillment	Answers of the students with additions at the lessons
1.	What are the types of endocrine glands disorders? – a, b, c	
2.	What are the pathogenetical variants of endocrine functions disorders? – a, b, c	

3.	What regulation of endocrine glands do take place? – a, b, c, d	
4.	What principles are in the basis of endocrine functions regulation? – a, b	
5.	What can be the reason of glandular disorders of endocrine functions? – a, b	
6.	What disorders can be basical for development of peripheral disorders of endocrine functions? – a, b, c	
7.	How does the transport of hormones realize in the organism? – a, b, c, d	
8.	How does metabolic inactivation of hormones realize? – a, b	

9.	What disorders of endocrine functions can be connected with disorders of hormone metabolism?	
10.	What are disorders of interaction of hormones and peripheral cells? – a,b	
11.	How does the regulation of biological action of hormones on cell happen? – a, b	

TASK 1. *Call the reasons of development of primary endocrine disorders:*

1. _____
2. _____
3. _____
4. _____
5. _____

TASK 2. *Enumerate forms of endocrinopathy:*

1. _____
2. _____
3. _____
4. _____

TASK 3. *Enumerate peripheral reasons of disorders of endocrine function:*

1. _____
2. _____
3. _____
4. _____
5. _____

TASK 4. *Call the reasons of chronical insufficiency of adrenal glands:*

1. _____
2. _____
3. _____
4. _____

TASK 5. *Enumerate mechanisms of hypoglycemia at chronically insufficiency of adrenal glands:*

1. _____
2. _____
3. _____
4. _____

TASK 6. *Call the reasons of hypercortisolism:*

1. _____
2. _____
3. _____
4. _____

TASK 7. *Enumerate mechanisms of development of hyperglycemia at hypercortisolism:*

1. _____
2. _____

3. _____
4. _____
5. _____

TASK 8. *Call the main etiological factors of acute primary insufficiency of adrenal glands:*

1. _____
2. _____
3. _____

TASK 9-10. *To solve clinico-pathophysiological problems.*

Problem 1.

A 40-years-old patient, who had arterial hypertension of unknown etiology, was admitted to the hospital for examination. AP 175/115 mm. Complains on muscular weakness, headaches. There are indicated: polyuria, significant hypopotassiumemia, high level of 17-oxycorticosteroids in urine.

1. What is the reason of increasing of AP, which the patient had? _____

 2. What are the mechanisms of development of hypertension? Give substantiation of your answer _____

 3. What additional examinations are necessary to be carried out for putting final diagnosis? _____

- Call the results, which confirm your conclusion. _____

Problem 2. A 32-years-old man, who was a sportsman-boxer of high class and heavy weight in the past, called the doxtor because of complaints about quickly growing body mass (for 6 months picked 7 kg), muscular weakness, appearence of bruise on skin after slack kicks, headache(more often in the back of the head), sometimes – flashing of flame spots and spirals, hightened thirst, often ptentiful urination.

At examination: patient of hyperstenic constitution, with surplace of fat deposit on face, neck, over clavicles, on the belly – purple strips, superflous pilosis on chest and back, a large amount of bruises of different colour on legs and arms. AP 185/110 mm. Blood analysis: Hb – 130 g/l, erythrocytes – $5,1 \cdot 10^{12}/l$, leucocytes $10 \cdot 10^9/l$, neutrophilia, lymphopenia, absence of eosinophiles, ESR – 5 mm/h, GPC – 210 mg%, hypersodiumemia.

Urine analysis:diuresis 4000 ml/day, density 1,035, glucosuria, proteins and KT are not founded, the content of free cortisol is increased.

1.What form of endorcine pathology a patient have? Give substanaion of ypur answer

2.If you suppose that there are some forms of endocrinopathy, what is the pathogenetic connection between them?

3.If the are some forms of endocrinopathy, which of them is primary?What is the reasons and mechanisms of it?

4.What are the mechanisms of development of every symptom, a patient have?

TASK 11.*To solve the tests of self-control*

1. A 35-years old patient, which have systemic lupus erythematosus, after the stoppage of prolonged glucocorticoid therapy, had circulatory collapse. It can be explained by decreasing of secretion of:

- A. aldosterone
- B. corticotropine
- C. adrenaline
- D. cortisol
- E. corticoliberine

4. A 5-years-old girl had symptoms of early pubescence: menstruation, growth of breast, deposit of fat in region of pelvis and hips. The most credible reason of early pubescence is:

- A. hormone-active tumor of ovary
- B. hyperplasia of adrenal glands
- C. adenoma of adrenal glands
- D. syndrome of polycystic ovaries
- E. hypoplasia of adrenal glands

5. A 50-years-old patient for 10 years has pulmonary tuberculosis. Makes excessive use of alcohol. In the last

2. After systematic use of adrenogenous hormones a athlete had atrophy of testicles. It is caused by decreasing of secretion of:

- A. testosterone
- B. ACTH
- C. prolactoliberine
- D. corticoliberine
- E. gonadotropin

3. A 50-years-old patient has increasing of size of hypophysis, hyperplasia of cortex of adrenal time he complained about irritability, quick fatiguability, syncopes, muscular weakness, reducing. Objectively: hyperpigmentation of coverlets, AP 90/60 mm. What is the most credible reason of the development of the disease?

- A. chronically alcohol inadequacy
- B. hypothalamus tumor
- C. affection of thyroid gland
- D. tuberculose affection of adrenal glands
- E. alcoholic affection of liver

glands, AP – 190/90 mm; concentration of glucose in blood 20 mmol/l, there is glucosuria. Obesity, hirsutism. For which pathology such changes are characteristic:
A. adiposogenital dystrophy
B. pituitary basophilism
C. Itsenko-Cushing syndrome
D. adrenocortical insufficiency
E. Conn's syndrome

6. A 25-years-old patient after the operation about ablation of the left adrenal gland suddenly decreased arterial pressure – 70/40 mm, pulse is frequent, of weak filling, cold sweat, emesis, hypotension, convulsions. What is the reason of such state?

- A. hypofunction of neurohypophysis
- B. hyperfunction of neurohypophysis
- C. atrophy of the right adrenal gland
- D. hypertrophy of right adrenal gland

E.hypofunction of adenohypophysis

7.A patient, which for the long time was treated about one of the form of collagenose with medicines of corticosteroid hormones, had quick physical and psychological fatigability, arterial hypotension, reducing, progressive hyperpigmentation of skin. What is in the basis of such symptom complex:

- A.chronically hypofunction of the medullary substance
- B.acute hyperfunction of cortex substance of adrenal glands
- C.chronically hyperfunction of cortex substance of adrenal glands
- D.acute hypofunction of cortex substance of adrenal glands
- E.chronically hypofunction of cortex substance of adrenal glands

8.A 45-years-old man complains about severe headaches, weakness, vertigo. Objectively: AP 180/100 mm. In blood: hypopotassiumemia of steady character (less than 3 mmol/l). In the

urine:hyperaldosteronuria.With what disease are such disorders connected?

- A.essential hypertension
- B.Conn's syndrome
- C. Itsenko-Cushing syndrome
- D.diffuse glomerulonephritis
- E. pheochromocytoma

9.A 5-years-old boy, which before developed without deviations from age norms, had pilosis by man's type, increased muscle mass. At examination there were indicated secondary sexual characters, but testicles by the size correspond to his age. What is the most credible reason of early pubescence?

- A.hormoneproducing tumor of adrenal glands
- B. hormoneproducing tumor of testicles
- C.increasing of gonadotropin producing
- D.increasing of adrenocorticotropin producing

E.increasing of gonadoliberines producing

10.The 26-years-old woman complains about weakness, decreasing of body mass on 18 kg, absence of menstruation, she is ill for year, after childbirth; the childbirth was heavy, accompanied by bleeding.

Objectively: height 168 sm, weight 53 kg, hypoplasia of mammary gland. A Simmonds' disease is diagnosed.What is the primary mechanism of disease development?

- A.decreasing of function of sex glands
- B.hypothyroidism
- C.decreasing of function of adrenal glands cortex
- D.decreasing of producing of adenohypophysis hormones
- E.hypoparathyroidism

11.A 40-years-old man complains about periodically attacks of headache with the sense of fear, increasing of arterial pressure – 200/170 mm. In periods between attacks AP is 170/90

mm. He is ill for 2 years. Simple hypotensive therapy is not effective. Objectively: pulse 120 beats per minute, with extrasystoles. Patient is excited. In blood: leuc. – 12,1 G/l, glycemia 10,5 mmol/l. In urine: density 1020, reaction is sour, leuc. – 3-4, eryth. – 1-2, proteins – signs. What is a reason of such state of the patient?

- A.hypertonic disease
- B. Itsenko-Cushing syndrome
- C.Conn's syndrome
- D. pheochromocytoma
- E.diabetic glomerulosclerosis

12. a girl has adrenogenital syndrome. Increased secretion of what hormones of adrenal glands caused such pathology?

- A. aldosterone
- B.adrenalin
- C.androgenes
- D.oestrogenes
- E.cortisol

13.A 46-years-old man, who suffered of toxic goiter, had an operation about resection of thyroid. After an operation he has loss of appetite, , dyspepsia, increased neuro-muscular excitability. Body mass didn't increased.Temperature is normal. What from the following caused the state of a man?

- A.increasing of thyroxin producing
- B. decreasing of thyroxin producing
- C.increasing of calcitonine production
- D.decreasing of parathormone production
- E. increasing of thyroliberine production

14. A 63-years-old woman was taken to the hospital with pain in hands, weakness, reducing. She is ill for 7 years, the disease progresses.Objectively: t – 36,4 C, breathing rate – 16 per min, heart rate – 76 beat/min, AP – 180/100 mm, skin is blind. In blood: glucose 6,0 mmol/l, Ca^{2+} - 3,8 mmol/l. In urine: hypostenuria. X-ray: diffuse

osteoparosis. At termography of thyroid: bright shining in the lower pole of right part.What state causes such clinic presentation?

- A.hyperpapythyroidism
- B.climacteric syndrome
- C.myeloma disease
- D.diabetes mellitus
- E.chronically pyelonephritis

15.A 53-years-old woman, height 163 sm, weight 92 kg,equal deposit of fat, face is puffy,slow-moving, apathic. At pressing a dent stays on skin of leg. By disturbance of what function of thyroid is this state caused?

- A.hypophysis
- B.adrenal glands
- C.thyroid
- D.sexual
- E.parathyroid

16.After the operation on thyroid a patient has fibrillar twitching of hads, legs and face muscles.This disorders can be removed by introduction of:

- A. thyroxin
- B. triiodothyronine
- C. thyrotropin
- D. parathormone
- E. calcitonin

17. A 35-years-old man died because of uremia, the reason of which was nephrolithiasis. At postmortem examination were detected a tumor of one of the endocrine glands, softening and deformation of bones, lots of calcified focuses in muscules and organs. It was diagnosed generalised fibrose osteodystrophy, which is connected with hyperfunction of hormone:

- A.corticotropin
- B.parathyrin
- C.calcitonin
- D.aldosterone
- E.glucocorticoids

18.What of the symptoms, which appear at hyperthyrosis are the most informative at diagnostics?

- A. tachycardia
- B.sleep disorders
- C. low grade fever
- D.increasing of main metabolism
- E.increased irritability

19.A child has disturbance of enamel and dentine formation because of low

concentration of ions Ca in blood. Deficit of which hormone can cause such disorders?

- A.parathormone
- B.thyroxin
- C.thyreocalcitonin
- D.somatotropin
- E. triiodothyronine

For notes
