# **Endocrinology. Final tests.**

# **Variant 10**

**1. Which of the following is most likely to decrease secretion of ACTH?**

A. administration of metyrapone

**B. administration of dexamethasone**

C. hypoglycemia

D. surgical removal of one adrenal gland

E. physical trauma

**2. A decrease in plasma ionized calcium together with an increase in PTH is most likely to be found in a patient with:**

A. hypoparathyroidism

B. primary hyperparathyroidism

**C. vitamin D deficiency**

D. vitamin D excess

E. calcitonin deficiency

**3. The combination of amenorrhea and galactorrhea is most likely caused by excess:**

A. growth hormone (GH)

**B. prolactin**

C. thyroxine (T4)

D. adrenocorticotropic hormone (ACTH)

E. parathyroid hormone (PTH)

**4. Which hypothalamic hormone stimulates more than one anterior pituitary hormone?**

A. growth hormone releasing hormone (GHRH)

B. somatostatin

**C. thyrotropin releasing hormone (TRH)**

D. dopamine

E. corticotropin releasing hormone (CRH)

5**. When administered to a healthy human, a substance that blocks conversion of cholesterol to pregnenolone would be most likely to cause an increase in secretion of:**

A. cortisol

B. dehydroepiandrosterone (DHEA)

C. aldosterone

**D. renin**

E. androstenedione

6**. Increased secretion of epinephrine is most likely to cause increased**:

A. triglyceride storage

B. glycogen synthesis

C. muscle glucose uptake

D. muscle protein synthesis

**E. gluconeogenesis**

7**. An exaggerated TSH response to TRH administration is most likely to be found in a person who has:**

A. thyroid stimulating immunoglobulins (TSI)

B. pituitary insufficiency

**C. primary hypothyroidism**

D. secondary hypothyroidism

E. elevated plasma thyroxine (T4)

8**. Which of the following hormones inhibits protein synthesis while stimulating protein breakdown?**

A. insulin

B. glucagon

C. epinephrine

**D. cortisol**

E. growth hormone

9**. Treatment of a healthy individual with excess thyroxine (T4) is most likely to:**

A. increase thyroid size

**B. decrease thyroidal radioactive iodine uptake**

C. increase the TSH response to TRH

D. decrease liver synthesis of thyroid binding globulin (TBG)

E. increase the thyroidal coupling reaction

10**. Fasting for 4 days would be most likely to**:

A. decrease plasma reverse T3 (rT3)

B. increase plasma thyroxine (T4)

**C. decrease plasma triiodothyronine (T3)**

D. increase plasma thyroglobulin

E. increase 5'-deiodinase activity

11. A 38-years-old patient M. has been operated on for toxic mul­tinodular goiter, II gr. For 2 weeks after the operation cramps in upper extremities had appeared, which persisted for 1-2 min. and accompanied with numbness in face. Cramps occur 1-2 times a day, commonly at a daytime. Pulse is 82 st/min, rhythmic; blood pressure is 110/70 mmHg. Visceral organs are not damaged. Trousseau’s, Hvostek’s I symptoms are positive. **What is the diagnosis?**

1. **Post-operative hypoparathyroidism**
2. Post-operative hypothyroidism
3. Pseudohypoparathyroidism
4. Epilepsy
5. Insulinoma

12. A patient D., 38 years old, is treated for recurrent urolithiasis for 7 years. At examination increased serum calcium and urinary calcium and low serum phosphate. Serum creatinine is normal. **What is the preliminary diagnosis?**

1. **Primary hyperparathyroidism, renal form**
2. Urolithiasis, secondary hyperparathyroidism
3. Urolithiasis, threefold hyperparathyroidism
4. Pseudohyperparathyroidism
5. Primary hyperparathyroidism, bone form

13. A 7-years-old child with cramps has hypocalcemia and radio­logic signs of osteoporosis. Parathyroid hormone blood level is increased. Hyperphosphatemia is revealed. The child has signs of physical and mental retardation. A treatment with parathyroid hormone was not effective. **What is the preliminary diagnosis?**

1. **Pseudohypoparathyroidism**
2. Pseudohyperparathyroidism
3. Pseudoidiopathic hypoparathyroidism
4. Idiopathic hypoparathyroidism
5. Primary hyperparathyroidism

14.A 56 year old man with type 2 diabetes mellitus of 23 years duration was seen in the clinic. He was noted to have hypertension (blood pressure 160/100 mmHg) and microalbuminuria and his serum creatinine was 120 mmol/L (Normal 50–110 mmol/L). He was prescribed a small daily dose of the angiotensin-converting enzyme inhibitor ramipril. Three days later, he was seen in the Emergency Room having become acutely short of breath. His blood pressure was 110/70 with a tachycardia of 110/min and he had bilateral basal crackles on auscultation of his chest. The chest X-ray indicated that he had developed pulmonary edema. The serum creatinine had risen markedly to 410 mmol/L. ***Which investigation would you perform next?***

1. Calculation of glomerular filtration rate based on serum creatinine level
2. Measurement of 24-hour urine protein excretion
3. Serum protein electrophoresis
4. ECG, ultrasound
5. **All of the above**

15. Patient J., is a 52 year old female diagnosed with type 2 diabetes mellitus 7 years ago. She notes that she has had variable control over her diabetes in the past, although her hemoglobin A1C has been excellent for the past 4 years. ***Which of the following would classify this patient as “high risk” for development of a diabetic foot ulcer?***

1. Absence of palpable pedal pulses
2. **Abnormalities of sensation via the monofilament test**
3. Presence of musculoskeletal foot deformities
4. Previous history of foot ulcers
5. All of the above

16. Where is the Pineal Gland located?

* 1. Roof of the thalamus
  2. Posterior portion of the roof of the third ventricle
  3. **A and B**
  4. None of the above

17. Which of the following is NOT contained in the pineal gland?

* 1. Neurons
  2. **Keratin**
  3. Neuroglia
  4. Pinealocytes

18. Melatonin production is:

* 1. Highest during daylight hours and lowest at night
  2. Always constant
  3. **Lowest during daylight hours and highest at night**
  4. Not produced in the pineal gland

19. Melatonin reduces the maturation rate of sperm/occytes by reducing the rate of what secretion?

* 1. Pinealocytes
  2. **GnRH**
  3. PnGH
  4. None of the above

20. What is the general function of the parathyroid gland?

1. Restores Calcium homeostasis by decreasing Calcium concentrations in body fluid
2. Restores Potassium homeostasis by decreasing Potassium concentrations in body fluid
3. Restores Potassium homeostasis by increasing Potassium concentrations in body fluid
4. **Restores Calcium homeostasis by increasing Calcium concentrations in body fluid**

21. A patient Z., 58 years old has all clinical and laboratory presentation of subacute thyroiditis. ***Which group of drugs is the most suitable in the treatment approach of DeQuervain’s thyroiditis?***

1. Antibiotics and thyroid hormones
2. **Salicylates and corticosteroids**
3. Physiotherapy
4. Surgery
5. β-Adrenergic blockers

22. At a patient M., 45 years old at the palpation of thyroid gland a nod­ule 2,0 х 3,2 cm is exposed in a left lobe, compacted, moderately painful during palpation. "Cold" nodule at scyntygrafia with I131. ***What inspection is most expedient for clarification of diagnosis?***

1. Ultrasound of thyroid gland
2. **Aspirational biopsy**
3. Determination of the TSH, T3 and T4 level in a blood
4. Immunodetection
5. Computed tomography scan (CT-scan) of thyroid gland

23. A patient B., 59 years old complains of the presence of nodule on the front surface of neck. Became ill 3 years ago. A nodule was enlarged in sizes, the timbre of voice changed, feeling of pressure appeared. Objectively: in the right lobe of thyroid a nodule is palpated 5 cm in a diameter, painless. The functional state of thyroid is not changed. What is the diagnosis?

1. Nodular euthyreoid goiter
2. Nodular hyperthyroid goiter
3. **Cancer of thyroid gland**
4. Chronic lymphomatous Hashimoto thyroiditis
5. Chronic fibrous Ridel's thyroiditis

24. A female, 72 years old in the grave condition hospitalization on emergency. Objectively: Temperature of the body - 35,8 °C. Blood pressure – 80/50 mmHg, pulse - 56 beats/min, diminished sonor­ity of tones of heart, breathing - 12 /min. A skin is pale, cold, moderate edema of face and extremities. The hairs are liquid, thin, on a head areas of alopecia. ***Most reliable that patient has:***

1. Addisonic crisis
2. **Myxedema coma**
3. Lactacidotic coma
4. Hypoglycemic coma
5. Hypocalcemia

25. The patient N., 26 years oldcomplains of the increase of body mass, weakness, constipations, worsening of memory, some lowering of the voice and increase in fatigue. After delivery, she nursed the infant for 1 week. She then stopped nursing, but galactorrhea and amenorrhea continued for the next 5 months. In the anamnesis - she had menarche at age 16 and had regular periods. She married at age 24 and was not able to conceive. After receiving therapy for 7 months for treatment of extensive endometriosis, she became pregnant and delivered after 36 weeks' gestation. Her sister had autoimmune thyroiditis. Objectively: a skin by touch is dry. A thyroid gland is enlarged II grade, smooth surface. Pulse – 58 beats/min, diminished sonor­ity of tones of heart. The laboratory results: high levels of microsomal autoantibodies against the thyroid gland, the levels of TSH and prolactin were elevated, low levels of T3, T4. **What is the diagnosis?**

1. **Autoimmune thyroiditis, hypothyroidism**
2. Diffuse nontoxic goiter
3. Autoimmune thyroiditis without violation of the thyroid gland function
4. Hypothyroidism
5. Syndrome of Van – Vik – Ross – Geness

**26.** A 40-year-old female patient complains of having a bulge on the anterior surface of neck for 5 years. Objectively: Ps- 72/min., arterial pressure - 110/70 mm Hg, in the right lobe of thyroid gland palpation reveals a mobile node 4x2 cm in size, the left lobe is not palpable, the basal metabolic rate is 6%. What is the most likely diagnosis?

1. **Nodular euthyroid goiter**
2. Nodular hyperthyroid goiter
3. Riedel’s thyroiditis
4. Mixed euthyroid goiter
5. Median cervical cyst

**27.** A 32-year-old patient complains of excessive appetite, excess weight, dyspnea during physical exertion. There are fat deposits in the area of abdomen and shoulder girdle. The skin is pale-pink, adult male pattern of hair distribution is observed on the torso, no stretch marks. Heart rate is 90/min., BP is 120/80 mm Hg, body build index equals 35. Blood sugar is 4,9 mmol/l, cholesterol is 6,2 mmol/l. On ophthalmoscopy: fundus of the eye without changes. What provisional diagnosis can be made?

1. Primary alimentary constitutive obesity, gynoid type
2. Secondary hypothalamic obesity
3. Secondary neuroendocrine obesity
4. Secondary endocrine hypo-ovarian obesity
5. **Primary alimentary constitutive obesity, android type**

**28.** A 35-year-old female patient has gained 20 kg weight within a year with the normal diet. She complains of chill, sleepiness, dyspnea. The patient’s mother and sister are corpulent. Objectively: height - 160 cm, weight - 92 kg, BMI - 35,9. Obesity is uniform, there are no striae. The face is amimic. The skin is dry. The tongue is thickened. Heart sounds are muffled. Heart rate - 56/min, BP - 140/100 mm Hg. The patient has constipations, amenorrhea for 5 months. TSH - 28 mkME/l (normal rate - 0,32-5). Craniogram shows no pathology. What is the etiology of obesity?

1. Hypo-ovarian
2. Hypothalamic-pituitary
3. Alimentary and constitutive
4. Hypercorticoid
5. **Hypothyroid**

**29.** A 40-year-old female patient complains of having a bulge on the anterior surface of neck for 5 years. Objectively: Heart rate - 72 bpm, arterial pressure - 110/70 mm Hg, in the right lobe of thyroid gland palpation reveals a mobile 4x2 cm node, the left lobe is not palpable, the basal metabolic rate is 6%. What is the most likely diagnosis?

1. Nodular hyperthyroid goiter
2. Riedel’s thyroiditis
3. Mixed euthyroid goiter
4. The median cervical cyst
5. **Nodular euthyroid goiter**

**30.** A 41-year-old patient with Addison’s disease had influenza. After that he developed adynamia, depression, nausea, vomiting, diarrhea and hypoglycemia. BP is 75/50 mm Hg. Blood test: decreased content of corticosterone, hydrocortisone, 13-oxycorticosteroids, 17-oxycorticosteroids. What condition has developed in the patient?

1. **Acute adrenal gland insufficiency**
2. Acute gastritis
3. Acute enterocolitis
4. Collapse
5. Diabetes mellitus

**31.** A 64-year-old woman has been suffering from diabetes mellitus for the last 14 years. Approximately 3 days ago the skin on the distal phalanx of the I toe on the left foot became cold and bluish-black in color. Mild pain is observed in the affected area. Pulse on the pedal arteries cannot be detected, pulse on the popliteal artery is retained. Glycemia is 12,4 mmol/l. US scan: stenosis of the shin arteries, collateral compensated blood flow. Ankle-brachial pressure index is 0,7. Foot Xray: destruction of the distal phalanx of the I toe. Determine the grade of diabetic foot according to Wagner:

1. **IV**
2. I
3. II
4. III
5. V

**32.** A 23-year-old woman after stress has developed thirst, polydipsia, polyuria, weight loss, increasing fatigue. Later she developed nausea and somnolence, lost consciousness and was hospitalised. Glycemia is 27 mmol/l, acetone in urine is sharply positive. Treatment for ketoacidotic coma was initiated. When would it be advisable to start preventive treatment of hypoglycemia by introduction of 5% glucose solution?

1. 2 hours after beginning of insulinotherapy
2. When patient becomes conscious
3. **After glycemia rate drops to 13-14 mmol/l**
4. After glycemia rate becomes normal
5. If glycemia decreases with the rate over 5 mmol/l per hour

**33.** A patient complains of weight gain, chill, edemas, xeroderma, somnolence, difficulties with focusing. Objectively: height is 165 cm; weight is 90 kg; body proportions are of female type, *to*- 35*,*8*oC*, heart rate - 58/min, BP 105/60 mm Hg. Heart sounds are weakened, bradycardia is observed. Other internal organs have no changes. Thyroid gland cannot be palpated. Milk secretion from mammary glands is observed. Hormone investigation revealed increased levels of thyroid-stimulating hormone (TSH) and prolactin, and decreased level of thyroxine (T4). Which one is the cause for obesity?

1. **Primary hypothyroidism**
2. Secondary hypothyroidism
3. Prolactinoma
4. Hypopituitarism
5. Adiposogenital dystrophy

**34.** A 30-year-old woman complains of infertility during her 10-year-long married life. Menstruations occur since she was 14 and are irregular, with delays up to a month and longer. Body mass is excessive. Hirsutism is observed. On bimanual examination: uterine body is decreased in size; ovaries are increased in size, dense, painless, and mobile. The most likely diagnosis is:

1. Follicular cyst of ovaries
2. Genital endometriosis
3. **Stein–Leventhal syndrome (Polycystic ovary syndrome)**
4. Genital tuberculosis
5. Inflammatory tumor of ovaries

**35.** A 48-year-old patient was found to have diffuse enlargement of the thyroid gland, exophthalmia, weight loss of 4 kg in 2 months, sweating. Objectively: HR- 105/min., BP140/70 mm Hg. Defecation act is normal. What kind of therapy is recommended in this case?

1. **Mercazolil**
2. Radioiodine
3. Propranolol
4. Lugol’s solution
5. Thyroxine

**36.** A 14-year-old girl has been presenting with irritability and tearfulness for about a year. A year ago she was also found to have diffuse enlargement of the thyroid gland (II grade). This condition was regarded as a pubertal manifestation, the girl did not undergo any treatment. The girl’s irritability gradually gave place to a complete apathy. The girl developed puffy face, soft tissues pastosity, bradycardia, constipations. Skin pallor and gland density progressed, the skin developed a waxen hue. What disease can be suspected?

1. Diffuse toxic goiter
2. Thyroid carcinoma
3. **Autoimmune thyroiditis**
4. Subacute thyroiditis
5. Juvenile basophilism

**37.** A 32-year-old woman complains of dizziness, headache, palpitation, tremor. For the last several months she has been under outpatient observation for increased arterial pressure. Since recently such attacks have become more frequent and severe. Objectively: the skin is covered with clammy sweat, tremor of the extremities is present. HR110/min., BP- 220/140 mm Hg. Heart sounds are muffled. Blood test results: WBCs- 9*,*8 · 109/l, ESR- 22 mm/hour. Blood glucose - 9,8 millimole/l. What disease is the most likely cause of this crisis?

1. **Pheochromocytoma**
2. Essential hypertension
3. Preeclampsia
4. Primary hyperaldosteronism
5. Diabetic glomerulosclerosis

**38.** A 15-year-old patient complains of excessive body weight, headache, irritability, rapid fatigability. Significant increase of body weight occurred at the age of 14. Objectively: weight is 90 kg; height is 160 sm, proportional body built. Fatty tissue is distributed evenly. There are thin pink striae (stretch marks) on the thighs, abdomen and mammary glands. BP - 145/90 mm Hg. Provisional diagnosis is:

1. Alimentary constitutive obesity
2. Somatoform autonomic dysfunction
3. **Pubertate dyspituitarism**
4. Itsenko-Cushing’s disease
5. Cushing’s syndrome

**39.** A child is 10 years old. The weight is 46 kg. Since birth the child has been gaining excessive weight. The parents are fullbodied. The child has undergone the following tests: carbohydrate tolerance, level of 17-ketosteroids, blood electrolytes, US of adrenal glands, cranium X-ray. The tests revealed no pathologies.The diagnosis of exogenic constitutive obesity has been made. What direction of therapy should be prioritized?

1. Sanatorium-and-spa treatment
2. Anorectic drugs
3. Dehydration therapy
4. ”Fat-burning” methods
5. **Reducing diet and exercise**

**40.** A 22-year-old patient complains of 8-months-long delay of menstruation. Anamnesis: menarche since the age of 12,5. Since the age of 18 menstruations are irregular. No pregnancies. Mammary glands have normal development; when the nipples are pressed, milk drops are discharged. On gynecological examination: moderate uterus hypoplasia. On hormonal examination: prolactin level exceeds the norm two times. On computed tomogram of the sellar region: a space-occupying lesion 4 mm in diameter is detected. The most likely diagnosis is:

1. **Pituitary tumor**
2. Lactation amenorrhea
3. Stein–Leventhal syndrome (Polycystic ovary syndrome)
4. **D.** Sheehan’s syndrome

**E.** Cushing’s disease

**41.** An 8-year-old child with a 3-year history of diabetes was hospitalized in hyperglycemic coma. Specify the initial dose of insulin to be administered:

**A. 0,1-0,2 U/kg of body weight per hour**

**B.** 0,05 U/kg of body weight per hour

1. 0,2-0,3 U/kg of body weight per hour
2. 0,3-0,4 U/kg of body weight per hour
3. 0,4-0,5 U/kg of body weight per hour

**42.** A 25-year-old woman complains of menstruation retention lasting for 3 years. The patient explains it by a difficult childbirth complicated with profuse hemorrhage, weight loss, brittleness and loss of hair, loss of appetite, depression. Objective examination reveals no pathologic changes of uterus and uterine appendages. What pathogenesis is characteristic of this disorder?

1. Hyperproduction of estrogen
2. Hyperproduction of androgen
3. Decreased production of progesterone
4. **Decreased production of gonadotropin**
5. Hyperproduction of prolactin

**43.** A 16-year-old girl has primary amenorrhea, no pubic hair growth, normally developed mammary glands; her genotype is 46 ХY; uterus and vagina are absent. What is your diagnosis?

1. Mayer-Rokitansky-Kuster-Hauser syndrome **C.** Cushing’s syndrome
2. Sheehan syndrome
3. **Testicular feminization syndrome**
4. Cushing’s disease

**44.** A 24-year-old patient complains of gaining body mass and increased appetite. Objectively: built of hypersthenic

type, body mass index is 33,2 kg/m2, waist circumference is 100 cm. Waist to hips circumference ratio is 0,95. What is the provisional diagnosis?

1. **Alimentary constitutive obesity, I stage, android type**
2. Itsenko-Cushing hypothalamic obesity, II stage, gynoid type
3. Alimentary constitutive obesity, III stage, gynoid type
4. Alimentary constitutive obesity, II stage, android type
5. Itsenko-Cushing hypothalamic obesity, I stage, android type

**45.** A 35-year-old female patient has gained 20 kg weight within a year with the normal diet. She complains of chill, sleepiness, dyspnea. The patient’s mother and sister are corpulent. Objectively: height - 160 cm, weight - 92 kg, BMI- 35,9. Obesity is uniform, there are no striae. The face is amimic. The skin is dry. The tongue is thickened. Heart sounds are muffled. Heart rate - 56/min., BP- 140/100 mm Hg. The patient has constipations, amenorrhea for 5 months. TSH- 28 mkME/l (normal rate - 0,32-5). Craniogram shows no pathology. What is the etiology of obesity in this case?

1. **Hypothyroid**
2. Hypo-ovarian
3. Hypothalamic-pituitary
4. Alimentary and constitutive
5. Hypercorticoid
6. The mother whose son grew up to 18cm over the summer was admited to the doctor. The examination of a boy of 12 years: height is 180 cm, weight is 68 kg. What endocrine gland is functioning poorly?
7. The thyroid
8. Genital
9. The adrenal gland
10. **Pituitary gland**
11. Epiphysis
12. Under some diseases it is observed aldosteronism accompanied by hypertension and edema due to sodium retention in the organism. What organ of the internal secretion is affected under aldosteronism?
13. **Adrenal glands**
14. Testicle
15. Ovaries
16. Pancreas
17. Hypophysis
18. Roentgenological examination of skull base bones revealed enlargement of sellar cavity, thinning of anterior clinoid processes, destruction of different parts, destruction of different parts of sella turcica. Such bone destruction might be caused by a tumour of the following wndocrinous gland:

A. **Hypophysis**

B. Epiphysis

C. Thymus gland

D. Adrenal glands

E. Thyroid gland

1. A patient is very tall, has long thick fingers, big lower jaw and loppy lower lip. The increased secretion of which hormone and gland can be suspected?
2. Gonadotropin of adenohypophysis.
3. Antidiuretic hormone of neurohypophysis.
4. Thyroid hormones. **.**
5. **Somatotropin of adenohypophysis.**
6. Glucocorticoids of adrenal glands.
7. The patient 30 years old complains of the severe thirst, dry mouth, which appeared after a strong nervous shock. Laboratory examination revealed an increase of blood sugar to 10 mmol / l. What endocrine gland has struck?

A. **Pancreas**

B. The thyroid

C. Genital

D. The adrenal gland

E. Epiphysis