# **Endocrinology. Final tests.**

# **Variant 4**

**1. 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

**2. 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

**3. Which of the following hormones is LEAST likely to have a nocturnal peak?**

**A. thyroxine (T4)**

B. ACTH

C. cortisol

D. prolactin

E. growth hormone (GH)

**4. In the United States, the most common form of diabetes is characterized by:**

A. lack of C-peptide

B. autoimmune attack on the beta cells

C. less than 50% concordance in twins

**D. obesity**

E. ketosis

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**. Which of the following stimulates the secretion of insulin but not glucagon?**

A. amino acids

B. gut hormones

**C. sulfonylureas**

D. parasympathetic nerves

E. acetylcholine

8**. 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)

9**. Which of the following hormones is least likely to increase during stress?**

**A. calcitonin**

B. glucagon

C. growth hormone

D. cortisol

E. epinephrine

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

A. insulin

B. glucagon

C. epinephrine

**D. cortisol**

E. growth hormone

11. 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**

12. 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

13. ***Patients with diabetes mellitus complicated by neuropathy should be taught:***

1. To visually inspect their feet daily
2. Never to walk barefoot, even in the house
3. To soak their feet to aid in healing foot ulcers
4. **Options a and b**
5. All of the above

14. ***How often should a glycosilated haemoglobin (A1C,%) be drawn in patient with diabetes mellitus?***

1. An A1C can be drawn monthly in patients whose therapy has just changed or who are not meeting glycemic control. In patients who are at glycemic control, it can be drawn four times a year
2. An A1C can be drawn quarterly in patients whose therapy has just changed or who are not meeting glycemic control. In patients who are at glycemic control, it can be drawn once a year
3. **An A1C can be drawn quarterly in patients whose therapy has just changed or who are not meeting glycemic control. In patients who are at glycemic control, it can be drawn twice a year**

15. ***Which of the following treatments have controlled trials shown to be beneficial for persons with type 2 diabetes mellitus and early nephropathy?***

1. Tight blood pressure control that includes an dihydropyridine-sensitive calcium channel blocker
2. **Tight blood pressure control that includes an angiotensin-converting enzyme inhibitor**
3. Tight blood pressure control that includes a potassium sparing diuretic
4. Dialysis

16. What organs does parathyroid hormone mainly target?

* 1. bone and intestine
	2. thyroid and liver
	3. **bone and kidney**
	4. thyroid and kidney

17. What specifically does parathyroid hormone do to maintain homeostasis?

* 1. stimulates osteoclasts
	2. inhibits osteoblasts
	3. reduces urinary excretion of Calcium
	4. **all of the above**

18. What is the disease where one of four parathyroid glands becomes an enlarged, benign tumor, producing too much Calcium to maintain good homeostasis?

* 1. hypoparathyroidism
	2. **hyperparathyroidism**
	3. parathyroid cancer
	4. basophilism

19. Which one is NOT a symptom of hypothyroidism?

* 1. fatigue
	2. weight gain
	3. feeling cold
	4. **shaking**

20. Which one is NOT a symptom of hyperthyroidism?

* 1. feeling hot
	2. weight loss
	3. shaking
	4. **constipation**

21. A 24 years old woman with chronic schizophrenia is referred for evaluation of abnormal thyroid function tests after experiencing an acute exacerbation of psychosis. She has no prior history of thyroid dysfunction but several family members have been affected by autoimmune thyroid disease. Over the preceding three months she has lost 8 kg and has noted insomnia, tachycardia, heat intolerance, and irregular menses. Physical examination demonstrates an anxious and restless young woman with resting tachycardia (rate 120 beats/min), tremor of extended fingers, bilateral lid lag and “stare”, warm moist skin, brisk reflexes, and an impalpable thyroid gland. Thyroid function tests are as follows: free T 4 - 4,2 ng / dL (normal 0,8 – 2,0 ng / dL), TSH < 0,01 μU / L (normal 0,4 – 4,5 μU / L), thyroglobulin – 5 ng / mL (normal < 40 ng / mL). ***Which diagnosis is most likely?***

1. Nervous exhaustion
2. Adenoma of thyroid gland
3. Struma ovarii
4. **Diffuse toxic goiter**
5. Nodular goiter

22.Patient A., 38 years old. Operated a diffuse toxic goiter. After the operation the state a patient became worse, palpitation, shortness of breath, diarrhea, fever. Objective review: fever is 38.6°С, pulse - 160 beats/min, blood pressure - 85/40***. Preliminary diagnosis***:

1. **Thyrotoxic crisis**
2. Thyrotoxic hepatitis
3. Pneumonia
4. Adrenal crisis
5. Acute pancreatitis

23. The patient M. is 55, appealed with complaints about the increase of thyroid. From the inspections the diffuse increase of thyroid is exposed to 2 grade, function is abnormal: high level of T3 and T4, undetectable TSH. The treatment of diffuse toxic goiter first of all usually include. ***Choose agent, which inhibits synthesis of thyroid hormones:***

1. **Thiamazole**
2. Potassium perchlorate
3. Potassium iodide
4. Iopanoic acid
5. Dexamethasone

24. A 50 year old man presents with enlargement of left anterior neck. He has noted increased appetite over past month with no weight gain, and more frequent bowel movements over the same period. Physical examination: temperature of 37,4 °С, the heart rate is 92 and the blood pressure is 110/50. There is an ocular stare with a slight lid lag. The thyroid gland is enlargement of 3 grade and asymmetric to palpation, nodule in left lobe of the thyroid gland. Result of ultrasound examination: a thyroid gland is increased, total size is 40 cm³, there is a 3 x 2.5 cm firm nodule in left lobe of the thyroid. Level of thyroid hormones are abnormal: high level of T3 and T4, undetectable TSH. ***Which diagnosis is most likely?***

1. Adenoma of thyroid gland
2. **Nodular goiter 3 grade, thyrothoxicosis**
3. Multinodular goiter
4. Diffuse toxic goiter
5. Nodular goiter

25. Patient V., 26 years old, during 3 months was ill diffuse toxic goiter III, to treatment – thyrozol 30 mg per day. After grippe the patient complaints: palpitations, tremor, high fever, diarrhea. Objective review: thyroid gland enlarged, smooth, normal texture homogenous. Abdominal pain, vomiting. Tachycardia – 140 beats/min, blood pressure 140/50. Fever – 40 ° C. ***Establish your diagnosis?***

1. **Diffuse toxic goiter in decompensation. Thyrotoxic crisis.**
2. Nodular goiter Toxic goiter in pregnancy
3. Adenoma of thyroid gland
4. Diffuse toxic goiter in compensation

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

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

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

**29.** 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. **After glycemia rate drops to 13-14 mmol/l**
3. When patient becomes conscious
4. After glycemia rate becomes normal
5. **E.** If glycemia decreases with the rate over 5 mmol/l per hour

**30.** 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. Itsenko-Cushing’s disease
4. **Pubertate dyspituitarism**
5. Cushing’s syndrome

**31.** A 39-year-old female patient complains of dyspnea when walking, palpitation, edemata in the evening. The patient’s height is 164 cm, weight - 104 kg. Objectively: overnutrition. Heart sounds are weak, and tachycardia is present. The menstrual cycle is not broken. Blood sugar is 5,6 mmol/l, ACTH-response tests revealed no alterations. X-ray of the Turkish saddle revealed no pathology. **What disease is it?**

1. **Alimentary obesity**
2. Climax
3. Pituitary obesity
4. Diabetes mellitus
5. Cushing’s syndrome (primary hypercortisolism)

**32.** A 39-year-old female patient complains of rapid fatigability, drowsiness, dry skin, hair loss, swelling of the face. A month ago, she underwent a surgery for thyrotoxicosis. **The patient has the following gland dysfunction:**

1. Pituitary, due to a tumor
2. Adrenal
3. **Thyroid (hypothyroidism), due to inadequate operative technique**
4. Parathyroid, due to the gland removal during surgery
5. Ovarian, due to a tumor

**33.** A 25-year-old female presented to a women’s welfare clinic and reported the inability to get pregnant within 3 years of regular sexual activity. Examination revealed increased body weight, male pattern of pubic hair growth, excessive pilosis of thighs, dense enlarged ovaries, monophasic basal temperature. **What is the most likely diagnosis?**

1. Adnexitis
2. Adrenogenital syndrome
3. **Polycystic ovarian syndrome**
4. Premenstrual syndrome
5. Gonadal dysgenesis

**34.** A patient with autoimmune thyroiditis accompanied by multinodular goiter underwent the right lobe ectomy and subtotal resection of the left lobe. What drug should be administered to prevent postoperative hypothyroidism?

1. **L-thyroxine**
2. Merkazolil
3. Iodomarin
4. Lithium drugs
5. Insulin

**35.** A 49-year-old female patient has type 1 diabetes of moderate severity. The disease is complicated by retinopathy and polyneuropathy. Besides that, repeated analyses of the daily urinary excretion of albumin revealed microalbuminuria (200-300 mg/day). Glomerular filtration rate is 105 ml/min. Blood pressure is within normal range. Normalization of the following indicator should be the first-priority task in the secondary prevention of diabetic nephropathy:

1. C-peptide
2. Blood insulin
3. **Glycosylated hemoglobin**
4. Fasting glucose
5. Glycemia 2 hours after a meal

**36.** After having the flu, a 39-year-old male patient with a history of Addison’s disease developed a condition manifested by weakness, depression, nausea, vomiting, diarrhea, hypoglycemia. AP- 75/50 mm Hg. Blood test results: low corticosterone and cortisol, 13-oxycorticosteroids, 17-oxycorticosteroids levels. **What condition developed in the patient?**

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

**37.** A 48-year-old patient has the following symptoms: diffuse enlargement of thyroid gland, exophthalmus, weight loss up to 4 kg within 2 months, excessive sweating. Objectively: heart rate 105/min, BP - 180/70 mm Hg. Stool is normal. **What therapy is advisable in the given case?**

1. Potassium iodide
2. Propranolol
3. Iodomarin
4. **Mercazolil (Thiamazole)**
5. Thyroxin

**38.** 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 got puffy face, soft tissues pastosity, bradycardia, constipations. Skin pallor and gland density progressed, the skin got a waxen hue. **What disease may be assumed?**

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

**39.** A 32-year-old woman complains of dizziness, headache, palpitation, tremor. For the last several months she has been under outpatient monitoring for increased arterial pressure. Recently such attacks have become more frequent and severe. Objectively: skin is covered with clammy sweat, tremor of the extremities is present. Heart rate - 110/min, BP - 220/140 mm Hg. Heart sounds are weakened. In blood: WBCs - 9*,*8 · 109/l, ESR - 22 mm/h. 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

**40.** An 8-year-old boy, who has been suffering from diabetes mellitus for 3 years, was delivered to a hospital in a condition of hyperglycemic coma**. Primary dose of insulin should be prescribed basing on the following calculation:**

1. 0,05 units/kg of body mass per hour
2. **0,1-0,2 units/kg of body mass per hour**
3. 0,2-0,3 units/kg of body mass per hour
4. 0,3-0,4 units/kg of body mass per hour
5. 0,4-0,5 units/kg of body mass per hour

**41.** During examination a patient is unconscious, his skin is dry and hot, face hyperemia is present. The patient has Kussmaul’s respiration, there is also smell of acetone in the air. Symptoms of peritoneum irritation are positive. Blood sugar is 33 millimole/l. **What emergency actions should be taken?**

1. **B.** Intravenous infusion of glucose along with insulin
2. **Intravenous infusion of short-acting insulin**
3. Introduction of long-acting insulin
4. Intravenous infusion of neohaemodesum along with glutamic acid
5. Intravenous infusion of sodium chloride saline

**42.** A woman consulted a therapeutist about fatigability, significant weight loss, weakness, loss of appetite. She has been having amenorrhea for 8 months. A year ago she born a full-term child. Haemorrhage during labour made up 2 l. She got blood and blood substitute transfusions**. What is the most probable diagnosis?**

1. Stein-Leventhal syndrome
2. Shereshevsky-Turner’s syndrome
3. **Sheehan’s syndrome**
4. Homological blood syndrome
5. Vegetovascular dystonia

**43.** 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/m*2, waist circumference is 100 cm. Waist to hips circumference ratio is 0,95. **What is the provisional diagnosis?**

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

**44.** During a surgical operation necessitated by the patient’s suffering from autoimmune thyroiditis with concomitant multinodular goiter the right lobe was removed and subtotal resection of the left lobe was performed. **What should be prescribed to the patient for postoperative hypothyroidism prevention?**

1. **L-thyroxin**
2. Mercazolil (Thiamazole)
3. Iodomarin (Potassium iodide)
4. Lithium preparations
5. Insulin

**45.** A 54-year-old patient has been suffering from diabetes mellitus for 5 years, with diet being his only treatment. Within the last half a year he lost 7 kg of body weight, complains of thirst, vertigo when raising from bed, decrease of erectile function, frequent stool, especially at night. Objectively: malnutrition, dry skin. BP in lying position is 160/90 mm Hg; BP in standing position is 170/85 mm Hg. No edemas. Fasting plasma glucose level is 12 mmol/l. Glycated hemoglobin accounts for 11%. Albumin excreted with urine is 20 mg per day. **The most likely diagnosis is:**

1. Diabetes mellitus type 1 with ketoacidosis
2. Diabetes mellitus type 1 with encephalomyelopathy
3. **Diabetes mellitus type 2 with visceral neuropathy**
4. Diabetes mellitus type 2 with nephropathy
5. Diabetes mellitus type 2 with polyneuropathy
6. 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 tumor of the following endocrinous gland:
	1. **Hypophysis**
	2. Epiphysis
	3. Thymus gland
	4. Adrenal glands
	5. Thyroid gland
7. A patient with external respiration dysfunctions needs tracheotomy. At the level of which cartilaginous tracheal retractions is the isthmus of thyroid localized the most often?

A. I - II.

B. Ill - IV.

**C. II - IV**.

D. IV-V.

E. V-VI.

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?

**A. Somatotropin of adenohypophysis.**

B. Gonadotropin of adenohypophysis.

C. Antidiuretic hormone of neurohypophysis.

D. Thyroid hormones.

E. Glucocorticoids of adrenal glands.

1. A 30-year-old patient complains of thirst and dry mouth which appeared after severe neurasthenia. Laboratory examination has shown blood sugar in¬crease up to 10 millimoles per litre. Which endocrine gland is affected?

**A. Pancreas gland.**

B. Thyroid gland.

C. Sexual gland.

D. Adrenal gland.

E. Epiphysis.

1. A 27-year-old patient has enlarged hands, feet, and lower jaw. Besides, deformation of articulations,spine, and hormonal disorders have been observed. Which gland is damaged?

A. Parathyroid.

B. Adrenal.

C. Pineal body.

D. Thyroid.

**E. Adenohypophysis**.