

CNS

1. A patient presented to a hospital with complaints about quick fatigability and significant muscle weakness. Examination revealed an autoimmune disease that causes functional disorder of receptors in the neuromuscular synapses. This will result in the disturbed activity of the following mediator:

- A *Acetylcholine**
- B Noradrenaline
- C Dopamine
- D Serotonin
- E Glycine

2. An experiment was aimed at testing flexor reflex in a spinal frog, which was initiated by simultaneous stimulation with isolated pre-threshold electrical impulses. The frequency of those impulses was such, that the reflex occurred. What process in the nerve centers can be observed during this experiment?

- A. Threshold summation
- B. *Temporal summation**
- C. Postsynaptic summation
- D. Spatial summation
- E. Presynaptic summation

3. Inhibition of alpha-motoneuron of the extensor muscles was noticed after stimulation of alpha-motoneuron of the flexor muscles during the experiment on the spinal column. What type of inhibition can this process cause?

- A *Reciprocal**
- B Presynaptic
- C Depolarizational
- D Recurrent
- E Lateral

4. As a result of trauma a patient has damaged anterior roots of spinal cord. What structures have been affected?

- A. *Axons of motoneurons and axons of neurons of lateral horns**
- B. Axons of neurons of lateral horns
- C. Dendrites of neurons of spinal ganglions
- D. Central processes of sensitive neurons of spinal ganglions
- E. Peripheral processes of sensitive spinal ganglions

5. As a result of injury, the integrity of the anterior spinal cord root was broken. Specify the neurons and the processes that had been damaged.

- A. Motor neuron dendrites
- B. Dendrites of association neurons
- C. Axons of sensory neurons
- D. *Axons of motor neurons**
- E. Dendrites of sensory neurons

6. During an experiment the dorsal roots of the spinal cord of the animal have been cut. What changes will be observed in the innervation zone?

- A. Decrease in muscle tone
- B. Sensitivity loss and loss of motor functions
- C. Increase in muscle tone

D. *Sensitivity loss

E. Loss of motor functions

7. The ventral roots of 5 frontal segment of spinal cord were cut during experiment in the animal. What changes will take place in the innervation region?

A *Loss of movements

B Loss of touch sensitivity

C Loss of temperature sensitivity

D Loss of proprioceptive sensitivity

E Hypersensitivity

8. A patient after hypertension stroke does not have voluntary movements in his right arm and leg with the increased muscle tone in these extremities. What type of dysfunction of nervous system is it?

A *Central paralysis

B Peripheral paralysis

C Peripheral paresis

D Reflex paresis

E Central paresis

9. A patient got an injury of spinal marrow in a road accident that caused loss of tactile sensation, posture sense, vibration sense. What conduction tracts are damaged?

A. Fascicle of Goll and cuneate fascicle

B. *Anterior spinocerebellar tract

C. Reticulospinal tract

D. Rubrospinal tract

E. Tectospinal tract

10. As a result of spinal-cord trauma a 33 y.o. man has a disturbed pain and temperature sensitivity that is caused by damage of the following tract:

A. Anterior spinocerebellar

B. Posterior spinocerebellar

C. Lateral spinocortical

D. Medial spinocortical

E. *Spinathalamic

11. In course of an experiment a toad's right labyrinth was destroyed. It will cause amyotonia of the following muscles:

A. Left flexors

B. Right flexors

C. Right and left extensors

D. *Right extensors

E. Left extensors

12. During an experiment the myotatic reflex has been studied in frogs. After extension in a skeletal muscle its reflectory contraction was absent. The reason for it might be a dysfunction of the following receptors:

A. Articular

B. Golgi tendon organs

C. *Muscle spindles

- D. Nociceptors
- E. Tactile

13. Deglutition of a patient is disturbed as a result of a trauma. The most probable cause of this disturbance is affection of the following part of CNS.

- A. *Medulla oblongata**
- B. Spinal cord. CV-VI
- C. Hypothalamus
- D. Mesencephalon
- E. Spinal cord. Th II-IV

14. A patient with disturbed cerebral circulation has problems with deglutition. What part of brain was damaged?

- A *Brainstem**
- B Cervical part of spinal cord
- C Forebrain
- D Interbrain
- E Midbrain

15. An animal has an increased tonus of extensor muscles. This is the result of intensified information transmission to the motoneurons of the spinal cord through the following descending pathways:

- A. Medial corticospinal
- B. *Vestibulospinal**
- C. Reticulospinal
- D. Rubrospinal
- E. Lateral corticospinal

16. As a result of damage to certain structures of brainstem an animal lost orientation reflexes. What structures were damaged?

- A. Black substance
- B. Vestibular nuclei
- C. Red nuclei
- D. *Quadrilateral bodies**
- E. Medial nuclei of reticular formation

17. A laboratory experiment on a dog was used to study central parts of auditory system. One of the mesencephalon structures was destroyed. The dog has lost the orienting response to auditory signals. What structure was destroyed?

- A. Reticular formation nuclei
- B. *Inferior colliculi of corpora quadrigemina**
- C. Red nucleus
- D. Substantia nigra
- E. Superior colliculi of corpora quadrigemina

18. As a result of destruction of certain brainstem structures an animal has lost its orientative reflexes in response to strong photic stimuli. What structures were destroyed?

- A. Red nuclei
- B. Posterior tubercles of quadrigeminal plate
- C. Vestibular nuclei
- D. *Anterior tubercles of quadrigeminal plate**
- E. Black substance

19. Brain tomography revealed a tumor in the region of red nucleus. What part of brain is damaged?

- A. *Midbrain**
- B. Interbrain
- C. Medulla oblongata
- D. Cerebellum
- E. Pons cerebelli

20. In a cat with decerebrate rigidity the muscle tone is to be decreased. This can be achieved by:

- A. Stimulation of the otolithic vestibular receptors
- B. Stimulation of the vestibulocochlear nerve
- C. Stimulation of the ampullar vestibular receptors
- D. Stimulation of the vestibular nuclei of Deiters
- E. *Destruction of the vestibular nuclei of Deiters**

21. One of the sections of central nervous system has layerwise arrangement of neurocytes. Among them there are cells of the following forms: stellate, fusiform, horizontal, pyramidal. What section of central nervous system is this structure typical for?

- A. *Cortex of cerebrum**
- B. Hypothalamus
- C. Medulla oblongata
- D. Spinal cord
- E. Cerebellum

13. A patient had a trauma that caused dysfunction of motor centers regulating activity of head muscles. In what parts of cerebral cortex can the respective center normally be located?

- A. Angular gyrus
- B. Superior part of precentral gyrus
- C. Supramarginal gyrus
- D. Superior parietal lobule
- E. *Inferior part of precentral gyrus**

22. A patient underwent an extraction of a part of a CNS structures by medical indications. As a result of the extraction the patient developed atony, astasia, intention tremor, ataxia and adiadocholinesia. Which part of CNS structure had been extracted?

- A. Hippocamp
- B. *Cerebellum**
- C. Basal ganglions
- D. Limbic system
- E. Amygdaloid corpus

23. A patient presents with the following motor activity disturbances: tremor, ataxia and asynergia movements, dysarthria. The disturbances are most likely to be localized in:

- A. Limbic system
- B. *Cerebellum**
- C. Brainstem
- D. Basal ganglions
- E. Medulla oblongata

24. During experiment a part of the brain was extracted, which resulted in asynergy and dysmetria development in the test animal. What part of brain was extracted in the animal?

- A. Frontal lobe
- B. Parietal lobe
- C. *Cerebellum**
- D. Reticulum
- E. Mesencephalon

25. A patient staggers and walks astraddle. He has hypomyotonia of arm and leg muscles, staccato speech. In what brain section is this affection localized?

- A. *Cerebellum**
- B. Red nucleus
- C. Caudate nucleus
- D. Motor cortex
- E. Putamen

26. A sportsman was examined after an intensive physical activity. The examination revealed disorder of movement coordination but the force of muscle contraction remained the same. It can be explained by retarded speed of excitement conduction through:

- A. Afferent nerves
- B. Conduction tracts
- C. *Central synapses**
- D. Efferent nerves
- E. Neuromuscular synapses

27. Vegetative abnormalities in the sleep, heat regulation, all kinds of metabolism, diabetes insipidus are developing in the patient due to growth of the tumour in the III ventricle of brain. Irritation of the nucleus of what part of the brain can cause these symptoms?

- A. Pons cerebelli
- B. Medulla
- C. *Hypothalamus**
- D. Mesencephalic tegmentum
- E. Cerebral peduncles (crura cerebri)

28. A 60-year-old man after cerebral hemorrhage felt asleep for a long time. Damage of what structure caused this state?

- A. *Reticular formation**
- B. Hippocampus
- C. Nuclei of the cerebral nerves
- D. Cortex of the large hemispheres
- E. Black substances

29. During an animal experiment, surgical damage of certain brain structures has caused deep prolonged sleep. What structure is most likely to cause such condition, if damaged?

- A. Cerebral cortex
- B. Basal ganglia
- C. Red nuclei
- D. Hippocampus
- E. *Reticular formation**

30. Parkinson disease is caused by disruption of dopamine synthesis. What brain structure synthesizes this neurotransmitter?

- A.*Substantia nigra**
- B. Corpora quadrigemina
- C. Globua pallidus
- D. Red nucleus
- E. Hypothalamus