GUIDELINES

FOR PRACTICAL LESSONS

Discipline: Neurology

The code of the disciplines: Neur 5306

Name of OP: 6B10101 "General Medicine"

The volume of training hours /credits: 150 hours (5 credits)

The course and semester of study: 5 year, 9 semester

Practical (seminar) classes: 35 hours

Shymkent, 2023

Methodological recommendations for practical training were developed in accordance with the working curriculum (syllabus) of the discipline «Neurology» and were discussed at a meeting of the Department.

Protocol № 1 dated 28.08.2023

Head of Department Zharkinbekova N.A.

Practical lesson№1

1. Topic: Sensitivity, symptoms and syndromes of the lesion, research methods. Autonomic nervous system, symptoms and syndromes of damage, research methods.

2. Purpose: to acquaint students with the basics of topical diagnosis of lesions of the nervous system, accompanied by impaired sensitivity, sensitivity research methods. To acquaint students with the basics of topical diagnosis of lesions of the nervous system, accompanied by disorders of the autonomic nervous system, methods of studying the autonomic nervous system.

3. Learning Objectives:

· the formation of students' knowledge of the anatomical and physiological principles of organization of the sensitive sphere of a person, the principles of topical diagnosis of lesions of various departments of the pathways of deep and surface sensitivity;

· the formation of skills, to explore various types of surface sensitivity (pain, temperature, tactile), to explore the deep muscle feeling, vibration sensitivity.

· the formation of students' knowledge about the anatomical and physiological features of the structure of the autonomic nervous system, the principles of topical diagnosis of lesions of various parts of the autonomic nervous system;

· the formation of skills, explore the various departments of the autonomic nervous system.

4. The main issues of the topic:

1. Determination of sensitivity.
2. The formation and course of the conductive paths of surface and deep sensitivity;
3. The structure diagram of the sensitive analyzer.
4. Classification (superficial, deep, complex types of sensitivity).
5. Conductors of the surface sensitivity system.
6. Conductors of the deep sensitivity system.
7. Types and types of sensitive disorders.
8. Ways of pain. Features of somatotopic representation of sensitivity in the cerebral cortex.
9. Peripheral and radicular-segmental sensitive innervation of the body.
10. Zones of innervation of the cervical, thoracic, lumbar and sacral segments of the spinal cord**.**
11. Characteristics of various kinds of disorders of sensitivity: anesthesia, hypoesthesia, dysesthesia, paresthesia, dissociation sensitivity disturbances.
12. Pain: local, projective, radiating, reflected. Zakharyin-Ged Zones.
13. Causalgia. Phantom pains. Radicular pain.
14. Symptoms of tension in diseases, injuries and other injuries.
15. The structure of the autonomic nervous system and its functions.
16. The functional difference between the autonomic nervous system and the somatic.
17. Departments of the autonomic nervous system.
18. The sympathetic nervous system.
19. Localization of structures.
20. Mediators and receptors.
21. Sympathoadrenal system.
22. Parasympathetic nervous system.
23. Localization of structures.
24. Mediators and receptors.
25. Arc of the vegetative reflex.
26. Distinctive features of the arc of the vegetative reflex from the arc of the somatic reflex.

27. The difference between the reflex arc of the parasympathetic reflex and the arc of the sympathetic reflex.
28. The value of the tone of the autonomic nerve centers for the body.
29. Trophic functions of the autonomic nervous system.
30. The main formations of the sympathetic and parsympathetic nervous system.
31. Methods of research of autonomic functions.
32. Study of the regulation of vascular tone.
33. Study of skin autonomic reflexes.
34. The study of thermoregulation and sweating.
35. Study of the regulation of urination and bowel movements.
36. The functions of the autonomic nervous system.
37. Pathology of the autonomic nervous system, sympathetic and parasympatheticotonia.

5. Methods of training and teaching: a glossary, thematic discussion, role-playing game, the use of digital educational resources.

6. Assessment methods: testing, oral and written interviews, essays, work with didactic material.

7. Literature:

Basic literature:

1. Е.И. Гусев Неврология и нейрохирургия. В 2 т. Т. 1. Неврология.: учебник / Е. И. Гусев, А. Н. Коновалов, В. И.Скворцова. - 4-е изд. доп.; Мин. образования и науки РФ. Рекомендовано ГБОУ ВПО "Первый Московский гос. мед.ун-т им. И.М. Сеченова". - М.: ГЭОТАР - Медиа, 2015.
2. Ахметова Ж.Б. Семиотика поражения черепно-мозговых нервов : учебное пособие / Ж. Б. Ахметова. - 2-е изд. - Караганда : АҚНҰР, 2019. - 162 с. Экземпляры: всего:15 - ЧЗ-2(2), ЧЗ-3(1), АУЛ(12)
3. Киспаева Т. Т. Атлас по неврологии : учебное пособие / Т. Т. Киспаева. - 2-е изд. - Караганда : АҚНҰР, 2019. - 126 с. Экземпляры: всего:25 - ЧЗ-2(2), ЧЗ-3(1), АУЛ(22)

Supplementary:

1. Неврология. Национальное руководство. Краткое издание: руководство / под ред. Е. И. Гусева. - М. : ГЭОТАР - Медиа, 2016.
2. Абдрахманова, М. Г. Современные принципы реабилитации неврологических больных : учебно методическое пособие / М. Г. Абдрахманова, Е. В. Епифанцева, Д. С. Шайкенов ; М-во здравоохранения и социального развития РК. КГМУ. - Караганда : ИП "Ақнұр", 2015

Electronic resources:

1. Консультант врача. Неврология. Версия. 1. 2 [Электронный ресурс]: руководство. - Электрон.текстовые дан. (127 Мб). - М. : ГЭОТАР - Медиа, 2009.
2. Нейрохирургия [Электронный ресурс] : учебник / С.В. Можаев [и др.]. - 2-е изд., перераб. и доп. - Электрон.текстовые дан. (50,3 Мб). - М.: Изд. группа "ГЭОТАР-Медиа", 2009.
3. Нервные болезни для врачей общей практики [Мультимедиа]: учебное пособие / под ред. И. Н. Денисова. - Электрон.дан. (105 Мб). - Алматы: ATPGKazakhstan при участии Кордис&Медио, 2006.
4. Физиология высшей нервной деятельности [Электронный ресурс]: методические рек.для студентов мед. фак. / сост. Д. А. Адильбекова.- Электрон.текстовые дан. (388 Кб). - Шымкент : Б. и., Б. г. - эл. опт.диск (CD-ROM).

5. Electronic database

№	Name	Link
1	RepositorySKMA	http://lib.ukma.kz/repository/
2	RepublicanInteruniversityDigitalLibrary	http://rmebrk.kz/
3	StudentAdvisor	http://www.studmedlib.ru/
4	Open University of Kazakhstan	https://openu.kz/kz
5	Law (access to the information and information sector)	https://zan.kz/ru
6	Paragraph	https://online.zakon.kz/Medicine/
7	ScientificElectronicLibrary	https://elibrary.ru/
8	Ashykkitaphana	https:// kitap.kz/
9	Thomson Reuters	www.webofknowledge.com
10	ScienceDirect	http://www.sciencedirect.com/
11	Scopus	https://www.scopus.com/

8. Control(questions, tests, tasks, etc.).

Question 1. Describe the formation and course of conductors of pain and temperature sensitivity;

Question 2. Describe the formation and | the course of conductors of deep sensitivity;

Question 3. Where are the first, second, and third neurons of the path of general sensitivity located?

Question 4. What are the zones of radicular, radicular-segmental innervation of the body;

Question 5. List the types of sensitivity disorders and characterize them (hypoesthesia, hyperesthesia, etc.);

Question 6. Describe the various types of pain;

Question 7. What violations of sensitivity are observed with damage to the horn of the spinal cord, anterior gray commissure;

Question 8. Describe the clinical picture of bilateral damage to the posterior columns of the spinal cord;

Question 9. Describe the violation of sensitivity in lesions of the optic tubercle;

Question 10. What disorders of sensitivity arise when the inner capsule is damaged;

Test questions:

1. How is the sensitivity disturbed when the trunk of the peripheral nerve is damaged?
a) the fields of anesthesia are circular on the body
b) the fields of anesthesia in the form of longitudinal strips on the limbs
c) the fields of anesthesia in the distal parts of the limbs in the form of “stockings” and “gloves”
d) dissociation of sensitivityoccurs
2. For damage to the posterior columns of the spinal cord characteristic:
a) loss of muscular-articular sensation
b) muscular-articular sensation persists
c) loss of pain and temperature sensitivity
d) loss of muscular-articular sensation, pain and temperature sensitivity

3. How is sensitivity disturbed when cells of the posterior horns of the spinal cord are damaged?
a) pain and temperature sensitivity remains on the injured side
b) pain and temperature sensitivity on the injured side is lost
c) muscular-articular and tactile sensation is lost on the injured side
d) muscular-articular and tactile sensation is lost on the opposite half of the body
e) all kinds are violated sensitivity on the opposite half of the body
4. In what cases do all kinds of sensitivity fall out?
a) with damage to the posterior columns of the spinal cord
b) with half lateral damage to the spinal cord
c) when the trunk of the peripheral nerve is damaged
d) when the cells of the anterior horns of the spinal cord are damaged
e) when the cells of the posterior horns of the spinal cord are damaged
5. What is the condition in which some types of sensitivity disappear, while others persist?
a) paresthesia
b) dissociation of sensitivity
c) dysesthesia
d) thermalgia
6. In what cases does dissociation of sensitivity occur?
a) with complete transverse damage to the spinal cord
b) with half lateral damage to the spinal cord
c) with damage to the trunk of the peripheral nerve
d) during pathological processes in the region of the optic tubercle
7. In what cases does dissociation of sensitivity occur?
a) with damage to the cerebellum
b) with complete transverse damage to the spinal cord
c) with damage to the trunk of the peripheral nerve
d) with damage to the cells of the posterior horns of the spinal cord
8. In what cases does dissociation of sensitivity occur?
a) with complete transverse damage to the spinal cord
b) during pathological processes in the region of the optic tubercle
c) when the posterior columns of the spinal cord are damaged
d) when the cerebellum is damaged
9. When does peripheral paralysis occur with a simultaneous loss of sensitivity in the corresponding zone?
a) with damage to the anterior horns of the spinal cord
b) with damage to the posterior roots of the spinal cord
c) with damage to the trunk of the peripheral nerve
d) with damage to the anterior roots of the spinal cord
10. What is the name of the condition in which unusual sensations appear, regardless of external irritations?
a) thermalgia
b) dissociation of sensitivity
c) dysesthesia
d) paresthesia
11. When does Brown-Secar syndrome occur?
a) with damage to the anterior horns of the spinal cord

b) with full transverse damage to the spinal cord
c) with half lateral damage to the spinal cord
d) with damage to the midbrain
e) with damage to the pituitary gland
12. What disorders are formed with half lateral damage to the spinal cord?
a) pain and temperature sensitivity is violated on the side opposite to the damage
b) pain and temperature sensitivity is violated on the side of the damage
c) deep and tactile sensitivity is violated on the side opposite to the damage
d) paralysis on the side opposite to the damage
13. What disturbances are formed with half lateral spinal cord injury?
a) deep and tactile sensitivity is impaired on the side opposite to the damage
b) pain and temperature sensitivity is impaired on the side of the injury
c) paralysis on the side of the injury
d) paralysis on the side opposite to the damage
14. What disturbances are formed with half lateral damage to the spinal cord?
a) deep and tactile sensitivity is impaired on the damage side
b) pain and temperature sensitivity is impaired on the damage side
c) deep and tactile sensitivity is impaired on the side opposite to damage
d) paralysis on the side opposite to damage
15. For impairment of sensitivity in case of damage at the thalamus level all of the listed symptoms are characteristic, except:
a) impaired surface sensitivity on the opposite side
b) severe pain (hemialgia)
c) dynamichemataxia
d) phantom pain
e) impaired deep sensitivity on the opposite side

Task 1. A woman handled potato plantings with insecticides. After 2 weeks, she went to the doctor with complaints of numbness in the hands and feet. On examination, hypoesthesia mainly on superficial types of sensitivity in the form of gloves and socks. The skin of the feet and hands is cold, "marble".
1. What is the type of sensitivity disorder.
2. Determine the level of damage.

Task 2. The patient complains of severe pain that begins in the lower part of the lumbar region and is given along the back surface of the left leg. On examination, hypesthesia is revealed along the anterior surface of the lower leg and foot. Positive symptom of Neri and Laseg on the left.Weakness of the left toe extensor.
1. What is the type of sensitivity disorder.
2. Determine the level of damage.

Task 3. The patient has an intense headache, periodically vomiting. On examination, it is impossible to bend the head so that the chin touches the sternum, while trying to straighten the left leg in the knee joint, when it is bent in the knee and hip joints, the right leg in the knee joint is bent.
1. Explain the symptoms described
. 2. Determine the level of damage.

Task 4. The young man ducked in a shallow spot. Could not come out.Dragged around.On examination, a violation of all types of sensitivity on the inner surface of the arms, trunk and legs.
1. What is the type of sensitivity disorder?

2. Determine the level of damage.

Task 5. In the morning after a deep sleep, the patient discovered that his right hand was "hanging". It cannot produce back flexion of the hand and sensitivity on the outer surface of the forearm is impaired.

1. What is the type of sensitivity disorder?
2. Determine the level of damage.

Practical lesson № 2

1. **Topic:** Introduction to the specialty. The pyramidal system, symptoms and syndromes of damage, research methods.

2. **Purpose:** acquaint students with the subject of neurology, general historical information on the development of neurology, the role of neurology in the structure of modern healthcare. Mastering by students of the anatomical and physiological features of the cortex-muscular pathway, symptoms and syndromes of their disorder, topical diagnosis of the defeat of the pyramidal system responsible for the motor act, as well as the development of methods for studying the human motor sphere.

3. **Learning objectives:**

- The formation of student knowledge about the history of the development of neurology and the development of the direction in neurology associated with the names of I.M.Sechenov, I.P. Pavlov, N.E. Vvedensky, A.A. Ukhtomsky, Magnus, Sherrington, etc.

- The formation of the student's knowledge of the anatomical and physiological characteristics of the organization of the human motor sphere, the structure of the pyramidal system; methods for studying the function of the motor sphere (study of the volume of active and passive movements, determination of muscle strength and tone, study of deep and superficial reflexes, study of pathological reflexes); classification of reflexes; principles of topical diagnosis of lesions of various parts of the pyramidal system.

- The formation of the student's skills to determine the volume of active and passive movements; examine the muscle strength of the limbs; muscle tone; deep and superficial reflexes; and also determine pathological reflexes.

4. **The main issues of the topic:**

1. General historical information on the development of neurology.
2. The development of neurology as a science.
3. The motor sphere is the interaction of a system of arbitrary movements, an extrapyramidal system and a system of coordination of movements.

4. The structure of the cortex-muscular tract of the system of voluntary movements.

5. Reflexes, classification (superficial, deep), circuit levels, variations.

6. Symptoms of central paralysis. Symptoms of peripheral paralysis.

7. The terminology of violations of voluntary movements: paresis, plegia, mono-, hemi-, tetra- and paraparesis.

8. Syndromes of motor disorders in lesions of the hemispheres, brain stem, spinal cord, roots and plexuses, peripheral nerves.

9. The role of electrodiagnostics in determining central and peripheral paralysis.

5. The main forms / methods / technology of training to achieve the final EP discipline: glossary, TVL, case study, thematic discussion, brainstorming, the use of digital educational resources.

6. Types of control for assessing the level of achievement of the final EP discipline: testing, oral and written questioning, interviewing, working with didactic material.

7. Literature:

Basic literature:

1. Е.И. Гусев Неврология и нейрохирургия. В 2 т. Т. 1. Неврология.: учебник / Е. И. Гусев, А. Н. Коновалов, В. И.Скворцова. - 4-е изд. доп.; Мин. образования и науки РФ. Рекомендовано ГБОУ ВПО "Первый Московский гос. мед.ун-т им. И.М. Сеченова". - М.: ГЭОТАР - Медиа, 2015.
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Supplementary:

1. Неврология. Национальное руководство. Краткое издание: руководство / под ред. Е. И. Гусева. - М. : ГЭОТАР - Медиа, 2016.**в)**
2. Абдрахманова, М. Г. Современные принципы реабилитации неврологических больных : учебно методическое пособие / М. Г. Абдрахманова, Е. В. Епифанцева, Д. С. Шайкенов ; М-во здравоохранения и социального развития РК. КГМУ. - Караганда : ИП "Ақнұр", 2015

Electronic resources:

1. Консультант врача. Неврология. Версия. 1. 2 [Электронный ресурс]: руководство. - Электрон.текстовые дан. (127 Мб). - М. : ГЭОТАР - Медиа, 2009.
2. Нейрохирургия [Электронный ресурс] : учебник / С.В. Можаев [и др.]. - 2-е изд., перераб. и доп. - Электрон.текстовые дан. (50,3 Мб). - М.: Изд. группа "ГЭОТАР-Медиа", 2009.

3. Нервные болезни для врачей общей практики [Мультимедиа]: учебное пособие / под ред. И. Н. Денисова. - Электрон.дан. (105 Мб). - Алматы: ATPGKazakhstan при участии Кордис&Медио, 2006.
4. Физиология высшей нервной деятельности [Электронный ресурс]: методические рек.для студентов мед. фак. / сост. Д. А. Адильбекова.- Электрон.текстовые дан. (388 Кб). - Шымкент : Б. и., Б. г. - эл. опт.диск (CD-ROM).

5. Electronic database

№	Name	Link
1	RepositorySKMA	http://lib.ukma.kz/repository/
2	RepublicanInteruniversityDigitalLibrary	http://rmebrk.kz/
3	StudentAdvisor	http://www.studmedlib.ru/
4	Open University of Kazakhstan	https://openu.kz/kz
5	Law (access to the information and information sector)	https://zan.kz/ru
6	Paragraph	https://online.zakon.kz/Medicine/
7	ScientificElectronicLibrary	https://elibrary.ru/
8	Ashykkitaphana	https:// kitap.kz/
9	Thomson Reuters	www.webofknowledge.com
10	ScienceDirect	http://www.sciencedirect.com/
11	Scopus	https://www.scopus.com/

8. Control (questions, tests, tasks, etc.).

Question 1. Tell us about the reflex-motor function, give a definition of unconditioned and conditioned reflexes; describe the arc structure of the segmental reflex.

Question 2. What is the course of the cortical-muscular pathway, what neurons this pathway consists of.

Question 3. Where do the cortical-spinal and cortical-nuclear (cortico-nuclear) pathways begin and where?

Question 4. Describe the clinical picture: a) central paralysis; b) peripheral paralysis.

Question 5. What motor disorders occur with irritation and which when the precentralgyrus is destroyed.

Question 6. What are the signs of the defeat of the pyramidal path in the internal capsule.

Question 7. At what localization of the pathological process do alternating paralyzes occur and what are their general neurological manifestations.

Question 8. Describe the clinical picture of the syndrome of damage to half the diameter of the spinal cord (Brown-Secar syndrome).

Question 9. What are the symptoms of complete damage to the diameter of the spinal cord at levels:

above the cervical spine, cervical thickening, thoracic region, lumbar thickening.

Question 10. What are the symptoms of damage to the cone of the spinal cord, epicone.

Question 11. What are the signs of damage to the ponytail roots.

Question 12. What are the manifestations of Brown-Secarsyndrome.

Task 1. In a patient with lower paraparesis, which developed after falling onto the back, the following are defined: spastic tone in the legs, increased tendon reflexes, Babinsky reflex, protective reflexes, and no abdominal reflexes.

1. What is the nature of paraparesis?

2. Where are lesions localized?

Task 2. In a patient after falling from a height of 3 meters in a neurological status tetraparesis is determined: on his hands - malnutrition, muscle hypotension, lack of reflexes; in the legs - spasticity of muscles, high tendon reflexes, Babinsky reflex.

1. What is the nature of paresis?
2. Where is the lesion located?

Task 3. After 5 days of high fever, the patient developed paralysis of the right arm in May with a decrease in muscle tone and tendon reflexes, fibrillar, and muscle hypotrophy.

1. What is the nature of paralysis?
2. Where is the lesion located?

Task 4.A patient m., 17 years old dived upside down, there was a weakness of all limbs. On the roentgenogram, a comminuted fracture of the c5 body with a shift is noted. Answer the following questions:

1. Is the paralysis of the upper and lower extremities the same?
2. List the main symptoms of leg paralysis in this patient.
3. What is the diagnostic value of protective reflexes.

Task 5. Patient A., 45 years old, suffers from headaches during the year. In the morning I felt a severe headache, convulsions of the muscles of the face on the right appeared, which then spread to the right hand. The attack lasted 1 minute.

1. Identify the lesion site.
2. What changes in the reflex sphere can be observed in the patient?
3. Can a patient develop paralysis?

Practical lesson№ 3

1. **Topic**:Extrapyramidal system, symptoms and syndromes of the lesion, research methods. Cerebellum. Afferent and efferent pathways of the cerebellum. Cerebellar function and syndromes of its defeat. Afferent and efferent pathways of the cerebellum. Cerebellar function and syndromes of its defeat.
2. **Purpose:** Mastering by students anatomical and physiological features of the extrapyramidal system and cerebellum. To acquaint students with the basics of topical diagnosis of lesions of the nervous system, accompanied by pathology of the extapiraid system and cerebellum, the methodology for studying the extrapyramidal system, cerebellar disorders, and differentiation of various forms of ataxia.
3. **Learning objectives:**

   The formation of students' knowledge about the structure of the extrapyramidal system, the cerebellum and its ascending and descending connections;

   the formation of knowledge among students about the methodology for studying the extrapyramidal system and functions of the cerebellum, hyperkinetic and akinetic-rigid syndromes, as well as syndromes of damage to the hemispheres, cerebellar worm, and types of ataxia;

   · formation of skills to investigate the muscle tone to determine the symptoms that characterize the extrapyramidal system in health and in violation of its functions

   · the formation of skills to examine the symptoms of damage to the hemispheres and cerebellar worm.
4. **The main questions of the topic:**

   1. The main anatomical structures of the extrapyramidal system of the brain.
   2. Anatomical and functional features of the striatal system.

3. Anatomical and functional features of the pallidary system.
4. The relationship of the extrapyramidal system with other formations of the central nervous system.
5. Clinical signs of damage to the pallidary system.
6. Clinical signs of damage to the striatal system.
7. Clinical characteristics of hyperkinesis: choreic, athetoid, torsion dystonia, hemiballic, thicoid.
8. Methodology for the study of extrapyramidal nervous system.
9. The main anatomical structures of the cerebellum.
10. The function of the cerebellum and its relationship with other structures of the central nervous system.
11. Clinical signs of cerebellar worm damage.
12. Clinical signs of cerebellar hemisphere damage.
13. The nature of dysarthria in lesions of the extrapyramidal nervous system and cerebellum.
14. Gait disorders with damage to the extrapyramidal system andcerebellum.
15. Methods of studying the functions of the cerebellum.

5. **The main forms / methods / technology of training to achieve the final EP discipline:** a glossary, thematic discussion, role-playing, case study, the use of digital educational resources.
6. **Types of control for assessing the level of achievement of the final RO discipline:** testing, oral and written questioning, essays, work with didactic material.

7. Literature:

Basic literature:

4. Е.И. Гусев Неврология и нейрохирургия. В 2 т. Т. 1. Неврология.: учебник / Е. И. Гусев, А. Н. Коновалов, В. И.Скворцова. - 4-е изд. доп.; Мин. образования и науки РФ. Рекомендовано ГБОУ ВПО "Первый Московский гос. мед.ун-т им. И.М. Сеченова". - М.: ГЭОТАР - Медиа, 2015.
5. Ахметова Ж.Б. Семиотика поражения черепно-мозговых нервов : учебное пособие / Ж. Б. Ахметова. - 2-е изд. - Караганда : АҚНҰР, 2019. - 162 с. Экземпляры: всего:15 - ЧЗ-2(2), ЧЗ-3(1), АУЛ(12)
6. Киспаева Т. Т. Атлас по неврологии : учебное пособие / Т. Т. Киспаева. - 2-е изд. - Караганда : АҚНҰР, 2019. - 126 с. Экземпляры: всего:25 - ЧЗ-2(2), ЧЗ-3(1), АУЛ(22)

Supplementary:

3. Неврология. Национальное руководство. Краткое издание: руководство / под ред. Е. И. Гусева. - М. : ГЭОТАР - Медиа, 2016.**в)**
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5. Консультант врача. Неврология. Версия. 1. 2 [Электронный ресурс]: руководство. - Электрон.текстовые дан. (127 Мб). - М. : ГЭОТАР - Медиа, 2009.

6. Нейрохирургия [Электронный ресурс] : учебник / С.В. Можаев [и др.]. - 2-е изд., перераб. и доп. - Электрон.текстовые дан. (50,3 Мб). - М.: Изд. группа "ГЭОТАР-Медиа", 2009.
7. Нервные болезни для врачей общей практики [Мультимедиа]: учебное пособие / под ред. И. Н. Денисова. - Электрон.дан. (105 Мб). - Алматы: ATPGKazakhstan при участии Кордис&Медио, 2006.

5. Electronic database

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8. Control(questions, tests, tasks, etc.):

Question 1. What are the anatomy and functional connections of the extrapyramidal system;
Question 2 What are the subcortical ganglia ;.
Question 3. What are the main anatomical and functional connections of the extrapyramidal system;
Question 4. With the defeat of which formations are extrapyramidal; Parkinsonism syndrome develops;
Question 5. Describe parkinsonism syndrome;
Question 6. What is muscular dystonia;
Question 7. With the defeat of which part of the extrapyramidal system, muscular dystonia develops;
Question 8. What are the types of muscular dystonia;
Question 9. What is the structure and functional significance of the cerebellum;
Question 10. How are the spinal cerebellar pathways formed;
Question 11. What are the paths that form each of the legs of the cerebellum;
Question 12. What are the main symptoms of cerebellar lesions;
Question 13. What are the features of the clinical picture of the lesion of the worm, cerebellar hemispheres.

Task 1. The patient complains of stiffness during movement, excessive salivation, difficulty speaking (pronouncing words slowly), constant trembling in the hands.
Objectively: the face is amymimic, the head is slightly tilted forward, the arms and legs are slightly bent in all joints, it performs active movements slowly. In the fingers, the trembling is rhythmic, with a small amplitude, in the form of “rolling pills”. The tone in

the arms and legs is evenly increased; there is the phenomenon of a "gear wheel". Tendon reflexes are live, uniform. There are no pathological reflexes. Sensitivity is not upset. He walks in small steps. Friendly movements are absent.
Explain the symptoms and indicate the location of the lesion.

Task 2. A 10-year-old child has an involuntary contraction of the muscles of the limbs, face, both at rest and during movements. The patient will either squeeze his eyes, or stick his tongue out, grimace, or throw his hand, or his leg. When writing, makes strokes. When walking, he "dances". Muscle tone in the limbs is reduced. Tendon reflexes are sluggish.
Explain the symptoms and indicate the location of the lesion.

Task 3. During the examination, the patient revealed: shakiness when walking, especially in the dark and with closed eyes, instability in the Romberg position, decreased muscle tone in both legs, crawling sensation in them. The patient confuses the name of the fingers and the direction of passive movements in them.
Explain the symptoms and indicate the location of the lesion.

Task 4. The patient complains of staggering when walking. On examination, there were revealed: nystagmus when viewed from the side, intentional trembling with a finger-bearing test, more on the left, adiadokhokinesis on the left, fuzziness with a knee-heel test on both sides, slightly more on the left. Severe muscle hypotension in the left limbs.With closed eyes falls to the left. Speech is stretched with emphasis on individual syllables.
Explain the symptoms and indicate the location of the lesion.
Task 5.A patient at the age of 63 has a gait change - walks in small steps, hands do not participate in the act of walking, the body is tilted forward; there is a slowdown, stiffness, hypomimia, rhythmic trembling in the fingers of the hands according to the type of coin count. An examination reveals an increase in muscle tone, a symptom of the "gear".
1. What is the pathological syndrome.
2. Determine the location of the pathological focus.

Task 6.A man aged 56 years gradually appeared violent, random involuntary movements in his face (closes his eyes, licks his lips, grimaces), in his arms and legs (impulsively changes the position of his limbs), constantly changes his posture. A decrease in muscle tone is noted.
1. What is the pathological syndrome.
2. Determine the location of the pathological focus.

Task 7. A woman of 25 years old had staggering when walking. The examination revealed: finely spreading spontaneous horizontal nystagmus when viewed from both sides. The volume of active movements and muscle strength are not changed. Mild muscle hypotension in the hands. When performing a finger-nasal test - intentional trembling on both sides. Unstable in the Romberg position.
1. Name the pathological syndrome
2. Determine the location of the pathological focus.

Task 8. A 40-year-old man during the examination reveals pathological symptoms: increased flexion-elbow, extensor-ulnar, wrist and knee reflexes on the right, there is no plantar reflex on the right, Babinsky symptom on the right. The volume of active movements and muscle strength are not changed. The finger-nasal and calcaneal-knee tests on the right, adiadochokinesis on the right are violated.
1. What are the pathological syndromes?
2. Identify the localization of the pathological focus.

Task 9.A patient with chronic alcoholism has a gait disturbance in the form of staggering when walking, aggravated by movement in the dark. During the examination, a violation of deep sensitivity in the legs is revealed, a heel-knee test from 2 sides is violated, swaying in the Romberg position, especially with eyes closed.
1. What are the pathological syndromes?
2. Identify the localization of the pathological focus.

Practical lesson №4.

1. Topic: Peripheral nervous system, symptoms and syndromes of damage, research methods.
2.Purpose: to acquaint students with the basics of topical diagnosis of lesions of the nervous system, accompanied by disorders of the peripheral nervous system, methods of studying the peripheral nervous system.
3. Learning objectives:

- The formation of the student's knowledge of the anatomical and physiological features of the structure of the peripheral nervous system; methods for studying the function of the peripheral nervous system; principles of topical diagnosis of lesions of various parts of the peripheral nervous system.
- The formation of the student's ability to conduct topical and differential diagnosis of neurological symptoms in case of damage to peripheral nerves; recognize the symptoms of lesions of the peripheral nerves, plexuses, roots, polyneuritic type of lesion; recognize the symptoms of neurological manifestations of osteochondrosis of the spine.

4. The main issues of the topic:
1. Anatomical and physiological features of the structure of the peripheral nervous system.
2. Classification of diseases of the PNS.
3. Classification of polyneuropathies.
4. Acute inflammatory demyelinating polyradiculo-neuropathy of Guillain-Barre.
5. Diphtheria polyneuropathy. Clinic, diagnostics.
6. Diabetic polyneuropathy. Clinic, diagnostics.
7. Alcoholic polyneuropathy. Clinic, diagnostics.
8. Classification of vertebrogenic diseases of the nervous system (reflex syndromes, radicular syndromes, compression-ischemic syndrome).
9. Symptoms of damage to the radial nerve (C5 – C8, Th1).
10. Symptoms of ulnar nerve damage.
11. Symptoms of a lesion of the median nerve.
12. Symptoms of sciatic nerve damage.
13. Symptoms of a femoral nerve lesion (L2 – L4).
14. Symptoms of a tibial nerve lesion (L4 – S3).
15. Symptoms of the defeat of the peroneal nerve.

5. Methods of training and teaching: glossary, TBL, Case-study, the use of digital educational resources.

6. Assessment methods: testing, oral and written interviews, interviews, essays, work with didactic material,

7. Literature:

Basic literature:

1. Е.И. Гусев Неврология и нейрохирургия. В 2 т. Т. 1. Неврология.: учебник / Е. И. Гусев, А. Н. Коновалов, В. И.Скворцова. - 4-е изд. доп.; Мин. образования и науки РФ. Рекомендовано ГБОУ ВПО "Первый Московский гос. мед.ун-т им. И.М. Сеченова". - М.: ГЭОТАР - Медиа, 2015.
2. Ахметова Ж.Б. Семиотика поражения черепно-мозговых нервов : учебное пособие / Ж. Б. Ахметова. - 2-е изд. - Караганда : АҚНҰР, 2019. - 162 с. Экземпляры: всего:15 - ЧЗ-2(2), ЧЗ-3(1), АУЛ(12)
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Supplementary:

1. Неврология. Национальное руководство. Краткое издание: руководство / под ред. Е. И. Гусева. - М. : ГЭОТАР - Медиа, 2016.**в)**
2. Абдрахманова, М. Г. Современные принципы реабилитации неврологических больных : учебно методическое пособие / М. Г. Абдрахманова, Е. В. Епифанцева, Д. С. Шайкенов ; М-во здравоохранения и социального развития РК. КГМУ. - Караганда : ИП "Ақнұр", 2015

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1. Консультант врача. Неврология. Версия. 1. 2 [Электронный ресурс]: руководство. - Электрон.текстовые дан. (127 Мб). - М. : ГЭОТАР - Медиа, 2009.
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	sector)	
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8	Ashykkitaphana	https:// kitap.kz/
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10	ScienceDirect	http://www.sciencedirect.com/
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8. Control (questions, tests, tasks, etc.).

1. The lesion is characterized by a violation of the femoral nerve:
a) flexion of the lower leg
b) extension of the lower leg
c) plantar extension of the foot
d) back extension of the foot
e) Achilles reflex:
2. For damage to the sciatic nerve, it is characteristic:
a) the absence of the Achilles reflex
b) the absence of the knee reflex
c) hypoesthesia along the anterior surface of the thigh
d) a positive symptom of Wasserman
3. For damage to the spinal ganglion it is characteristic:
a) radicular pain
b) herpetic eruptions / herpes zoster /
c) peripheral segmental paresis
d) dissociated type of sensitivity disorder
e) disorder of all types of sensitivity in corresponding segment
4. Symptoms characteristic of polyneuropathy:
a) hemiparesis
b) conduction type of sensitivity violation
c) pain along the nerves
d) peripheral paresis of the hands, feet
e) muscle hypertension
e) decreased sensitivity in the distal extremities

g) vegetative disturbances in the distal limb
5.Symptoms characteristic of diphtheria polyneuropathies:
a) a central tetraparesis
b) ulbarny
paralysis)paralysis of accommodation
g) meningeal symptoms
d) pleocytosis in CSF
e) of the limbs arastezii
g) cardiac arrhythmia
complementing :
6. A “claw-shaped” brush is characteristic of a _____ nerve lesion.
Answer: ulnar

7. The “drooping” hand is characteristic of the defeat of _____ nerve.
Answer: radiation
8. A "monkey" brush is characteristic of a _____ nerve lesion.
Answer: median
9. The absence of an extensor-elbow reflex is characteristic of a _____ nerve lesion.
Answer: radiation
10. The absence of a knee reflex is characteristic for the defeat of _____ nerve.
Answer: femoral.
11. The nerve innervates the tailor muscle:
1) theobturator
2) the incremental obturator
3) the internal cutaneous nerve
4) the posterior cutaneous nerve of the thigh
12. The number of intercostal nerves:
1) 10 pairs
2) 11 pairs
3) 5 pairs
4) 12 pairs
13. Sciatic nerve refers to:
1) the skin branches of the cervical plexus
2) short brachial plexus
3) long sacral plexus
4) short lumbar plexus
14. The plexus is not:
1) the brachial
2) cervical
3) lumbar
4) pectoral
15. The small occipital nerve is a branch plexuses:
1) cutaneous branches of the cervical
2) brachial
3) lumbar
4) muscle branches of the cervical
16. The plexus formed by the anterior branches of the fifth sacral and first coccygeal nerves:
1) lumbar
2) sacral
3) thoracic
4) coccygeal
17. The median nerve refers to branches:
1) skin branches of the cervical plexus
2) short brachial plexus
3) long lumbar plexus
4) long brachial plexus
18. Gluteal nerves belong to:
1) skin branches of the cervical plexus
2) short sacral plexus
3) short lumbar plexus
4) long brachial plexus

19. The sacral nerve refers to:
1) skin branches of the cervical plexus
2) short sacral plexus
3) short lumbar plexus
4) long lumbar plexus
20. Iliac-hypogastric nerve refers to:
1) cutaneous branches of the cervical plexus
2) short sacral plexus
3) short lumbar plexus
4) long lumbar plexus

Practical lesson№5.

Topic: Functions and research methods of 12 pairs of cranial nerves.
2. Purpose: To study methods for studying the function of cranial nervesand its features in adults and children. Master the basics of topical diagnosis of the main syndromes of damage to the cranial nerves and brain stem at different levels.
3. Learning objectives:

- the formation of students' knowledge of topographic anatomy of 12 pairs of FMN, methods for examining their functions, lesion syndromes of different parts of the brain stem, recognition of symptoms of damage to the bridge and medulla oblongata (alternating syndromes), differential diagnosis of bulbar and pseudobulbar syndromes of the brain stem;
- the formation of skills, explore the functions of 12 pairs of FMN; recognize alternating syndromes of the middle, bridge and medulla oblongata, symptoms of bulbar and pseudobulbar syndrome.

4. The main questions of the topic:

1. Brain stem-anatomy, function, localization of the nuclei of the cranial nerves.
2. Sensitive cranial nerves: olfactory (V pair), visual (II pair), auditory anatomy analyzers, function, research methodology and its features in children, lesion clinic.
3. Motor cranial nerves: oculomotor (III, IV, VI pairs) facial (VII couple), additional (XI couple), sublingual (XII couple) anatomy, function, research technique, lesion clinic.
4. Mixed cranial nerves: trigeminal (V pair), lingual-pharyngeal (IX pair), vagus (X pair) anatomy, function, research technique, lesion clinic.
5. Bulbar and pseudobulbar paralysis -clinic, topical diagnosis.
6. Alternating syndromes, anatomy, characteristics, clinic of Weber syndrome, Miyar-Gubler, Fauville, Jackson, their significance for the topical diagnosis of brain stem damage.

5. Methods of training and teaching: glossary, TVL, Case-study, the use of digital educational resources.
6. Assessment methods: testing, oral and written interviews, interviews, essays, work with didactic material.
7. Literature:
Basic literature:

1. Е.И. Гусев Неврология и нейрохирургия. В 2 т. Т. 1. Неврология.: учебник / Е. И. Гусев, А. Н. Коновалов, В. И.Скворцова. - 4-е изд. доп.; Мин. образования и науки РФ. Рекомендовано ГБОУ ВПО "Первый Московский гос. мед.ун-т им. И.М. Сеченова". - М.:

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Control:

1.Bitemporalhemianonpsy is manifested:

1) the loss of the temporal fields of vision and is typical for the defeat of the internal parts of the chiasm

2) the loss of the internal fields of vision, is characteristic of the defeat of the external parts of the chiasm

3) loss of the visual fields with maintaining central vision
4) decrease in visual acuity in one eye
5) loss of visual fields on one side

2. The symptom of "cleft eye" is characteristic of:
1) central paralysis of the vii nerve
2) lesions of the iii nerve
3) peripheral paralysis of the vii nerve
4) lesions of the viral nerve
5) peripheral lesion of the ix nerve

3.In childhood more common:
1) neuritis of the facial nerve
2) neuritis of the femoral nerve
3) neuritis of the median nerve
4) neuritis of the sciatic nerve
5) neuritis of the oculomotor nerve

3. Lesions of the facial nerve more often occur:
1) primary
2) secondary
3) simultaneously
4) sequentially
5) all of the above

4. In case of damage to the vestibular apparatus, the balance is disturbed:
1) when standing
2) when walking
3) when carrying out rotational oh and caloric samples
4) when turning the head to the sides
5) all of the above

5. Damage to the facial nerve in the temporal bone canal occurs most often:
1) with otitis media
2) pathological changes in the membranes of the brain
3) diseases of the parotid gland (mumps)
4) with pathology of the maxillary sinus
5) pneumonia

6. When the process is localized in the area of the facial nerve canal, there is:
1)lacrimation
2) dry eyes
3) impaired pain and tactile sensitivity
4) the development of Miyar-gubler syndrome
5) hearing loss

7. Common to all levels of facial nerve damage are:
1) impaired function of the facial muscles
2) sensitivity disorder
3) autonomic disorders
4) dry eyes
5) taste disturbance

7. Central paresis of the facial nerve is characterized by:
1) mimic muscles of the lower half of the face on the side opposite to the focus
2) hyperacusis, dry eyes, lagophthalmos

suffer3) mimic muscles of half of the face on the side of the lesion
suffer 4) mimic muscles of the upper half of the face on the affected side
5) lack of taste in one half of the tongue
8. Cranial nerves that determine the taste function in the tongue:
1) ix, x, vii
2) v
3) xii, ix
4) iii, x
5) viii, v
9. Peripheral paralysis of the muscles of the tongue occurs when:
1) the cortical-nuclear pathway from both sides
2) the trunk of the hyoid nerve, the nucleus of the hyoid nerve
3) the nucleus v of the nervenucleus
4) thea vii nerve
5) nuclei x nerve
10. Signs of bulbar palsy:
1) dysarthria, dysphagia, tachycardia, aphonia, lack of pharyngeal reflex, atrophy of the muscles of the tongue
2) dysarthria, dysphagia, deviation of the tongue
3) violent laughter, reflexes of oral automatism
4) dysarthria , dysphagia, reflexes of oral automatism, violent laughter
5) an increase in the pharyngeal reflex, deviation of the tongue
11. The Vrizberg nerve passes:
1) as a part of the hyoid nerve
2) as a part of the vestibular nerve
3) as a part of the facial and trigeminal nerve
4) as a part of the oculomotor nerve
5) as a part of the hyoid nerve
12. Iii a pair of ChMNs innervates:
1) the external rectus muscle of the eye
2) the superior oblique muscle of the eye
3) the internal rectus, lower straight, eye muscles
4) the lower oblique, superior rectus of the eye muscle
5) the muscle that lifts the upper eyelid
13. The trigeminal nuclei are located:
1) the sensitive nucleus in the warolium bridge, with spreading into the medulla oblongata, the motor nucleus in the warolium bridge
2) the sensitive nuclei at the mid-level of the brain, motor nuclei at the bridge level
3) in the medulla oblongata
4) on the midbrain
5) in the anterior horns of the spinal cord
14. The brainstem consists of:
1) the cerebellum, the medulla oblongata
2) the midbrain, the pons and medulla oblongata
3) hypothalamic region
4) of the thalamus, reticular formation
5) of the limbic system
15. The rhomboid fossa is formed by:

1) the ventral divisions of the medulla oblongata and the parsley bridge
2) the upper divisions of the midbrain
3) the cerebellum
4) the optic tubercle
5) the internal capsule

16. The nuclei of the oculomotor nerves iii , iv, vi pairs are located:
1) the core of the III pair - at the level of the bridge, the core of the block (iv) at the level of the upper hillocks of the quadrupole, the core of vi - at the level of the midbrain
2) the nuclei of iii and iv are laid in the middle brain at the bottom of the sylvian water supply - the nucleus of the oculomotor nerve - at the level of the anterior tubercles of the quadrupole, the nucleus of the block nerve at the level of the posterior tubercles, the nucleus of the abduction nerve is embedded in the warolium bridge
3) nuclei of iii and iv pairs at the level of the oblong zga, vi - at the level of the warolium bridge
4) at the level of the midbrain
5) iii couple - at the level of the warolium bridge, iv and vi pairs at the level of the medulla oblongata

17. Trigeminal nerve function:
1) carries sensitivity for the face
2) carries sensitivity for of the face, motor function for chewing muscles
3) innervates the facial muscles
4) carries gustatory sensitivity for the anterior 2/3 of the tongue
5) participates in the innervation of the gaze

18. The nucleus of the facial nerve is located and innervates:
1) the nucleus is located at the level of the anterior tubercles of the quadrupole and innervates the mimic muscles
2) the nucleus of the facial nerve is located in the warolium bridge at the border with the medulla oblongata. The facial nerve innervates the facial muscles, its secretory fibers of the submandibular and sublingual salivary glands, its sensory fibers carry the taste function of the anterior 2/3 of the tongue
3) the nucleus is located in the medulla oblongata, innervates the muscles of the pharynx
4) the nucleus is located in the warolium bridge, innervates from the eyes
5) the nucleus is located in the midbrain, innervates the facial muscles of the face

19. The structure of the nucleus of the facial nerve:
1) is divided into the ventral (upper) and dorsal (lower) parts, the upper part of the nucleus receives bilateral cortical innervation
2) the upper part of the nucleus receives unilateral cortical innervation
3) the facial nerve departs only from the lower part of the nucleus of the facial nerve
4) the lower part of the nucleus receives bilateral cortical innervation
5) the facial nerve departs only from the upper part of the nucleus of the facial nerve

20. The main levels of damage to the facial nerve:
1) theVarolian bridge
2) the upper sections of the fallopian channel
3) the lower sections of the fallopian channel
4) after exit and h f. Stilamastoideum
5) f. Ratundum

Task 1. The patient revealed: asymmetry of the face - on the right, cannot wrinkle his forehead, close his right eye, with a grin of teeth, the mouth pulls to the left. The right eyeball

is slightly tilted inward. There is a limitation of its mobility in the lateral direction. The patient complains of double vision. At the same time, he noted a violation of sensitivity on the left half of the trunk, a miss with a finger test on the left.

Explain the symptoms and indicate the location of the lesion.

Task 2. During the examination, the patient revealed: right-sided ptosis, complete immobility of the right eyeball, the pupil was dilated. The patient is disturbed by sharp pains in the right eye, there is hypesthesia in the frontal area on the right. On the right, the corneal reflex is reduced.

Explain the symptoms and indicate the location of the lesion.

Task 3. The patient has impaired taste in the posterior third of the tongue. Concerned about pain in the tonsils, arches with irradiation to the left behind the ear.

Explain the symptoms and indicate the location of the lesion.

Task 4. The patient has his right shoulder lowered. The right scapula moves away from the spine with its lower corner outwards and upwards. It is impossible to turn your head to the left. It is limited to raising the right hand above the horizontal level, shaking the right shoulder. Hypotrophy and hypotension of the trapezius and sternocleidomastoid muscles on the right.

Explain the symptoms and indicate the location of the lesion.

Task 5. Upon receipt of a patient's complaints of hoarseness, difficulty swallowing solid food, pouring liquid food through the nose.

Objectively: the voice is hoarse, with a nasal hue, the soft palate on the right is lowered, its mobility is sharply limited, the tongue is rejected to the left. The pharyngeal reflex is reduced. On the back third of the tongue on the right, the patient cannot distinguish between sweet and bitter. When protruding, the tongue deviates to the right. The right half of the tongue is much smaller than the left, tuberous, uneven, twitching of individual muscle fibers is observed in it.

Explain the symptoms and indicate the location of the lesion.

Task 6. The man was delivered by ambulance from the scene of a traffic accident. I lost consciousness. He does not remember the circumstances of the accident. On examination: the palpebral fissures are uneven - on the right is wider than on the left. Doesn't close his right eye. Corneal and superciliary reflexes on the right are reduced. The right nasolabial fold is smoothed. The mobility of the right eyeball outside is limited. Spontaneous horizontal nystagmus when looking to the left. The hearing in the right ear is impaired. Paresis, there are no violations of sensitivity. Coordinator tests are worse on the right.

1. Highlight pathological syndromes.
2. Determine the location of the lesion.

Task 7. The girl was ill with ARVI. After 2 weeks, pain and weakness in the legs appeared, which quickly increased, weakness in the hands joined, the voice changed. When examined on the 5th day of the disease: the general condition is severe. Cyanosis of the lips, breathing is frequent, shallow. Pulse 120 beats per 1 minute. Internal organs - without pathology. Doesn't close her eyes; eyebrows and corneal reflexes on both sides are not caused. The nasolabial folds are smoothed, the corners of the mouth do not rise. The soft sky is motionless. The voice is dull, choking when swallowing. Pharyngeal reflexes are not invoked from two sides. The tongue sticks out with difficulty, fascicular twitching in it.

1. Highlight pathological syndromes.
2. Determine the location of the lesion. 2. Determine the location of the lesion.

Task 8. A 40-year-old woman has a gradual decrease in vision. On examination, visual acuity on the right 0.3; left - 0.5 glass is not corrected. The temporal fields of view are narrowed on both sides.

1. Highlight pathological syndromes.
2. Determine the location of the lesion.

Task 9. In a 40-year-old man, examination revealed a violation of the perception of odors on the right (does not smell). On the fundus: on the right, atrophy of the optic disc, on the left - congestive disc.

1. Highlight pathological syndromes.
2. Determine the location of the lesion.

Task 10. A woman 38 years 2 years ago found deafness in her right ear (she did not hear a telephone conversation with her right ear). During the examination: does not bring the right eyeball outwards. All types of sensitivity on the right half of the face are reduced. There are no corneal, nasal, superciliary reflexes on the right. The palpebral fissure is wider on the right, the right eye is squeezing worse (the "cilia symptom"), the right nasolabial fold is smoothed. There is no hearing in the right ear. Spontaneous horizontal nystagmus, medium-wide, slow to the right, small to the left. Fuzzy performs finger-nasal and calcaneal-knee tests on the right, adiadokhokinesis on the right. Muscular hypotension in the right limbs.

1. Highlight pathological syndromes.
2. Determine the location of the lesion.

Practical lesson№6.

1. Topic: Higher mental functions, symptoms and syndromes of defeat. Research Methods.

2. Purpose: To study the basic functions of the cerebral cortex and the symptoms of damage to individual lobes of the brain; master the methods of studying cortical functions.

3. Learning objectives:

- the formation of students' knowledge about the localization of functions in the cerebral cortex, the symptoms of damage to different parts of the brain, symptoms of impaired higher cortical functions, types of impaired consciousness;
- the formation of skills, to identify the symptoms of damage to the frontal lobe, parietal lobe, temporal lobe, occipital lobe, to determine the symptoms of damage to the internal capsule, and also to study the functions of speech, writing, reading, counting, praxis, gnosis.

4. The main issues of the topic:

1. Structural and functional organization of higher brain functions. Localization of functions in the cerebral cortex.Speech as the highest function of the human nervous system. Localization of speech centers.
2. Functional differences of the left and right hemispheres of the brain.
3. The participation of various departments of the nervous system in the implementation of speech functions.
4. Types of apraxia-research methodology
5. The speech is impressive and expressive.
6. The essence of aphasia and its variants.
7. Classification and diagnosis of impaired consciousness.
8. Structural and functional support of memory. Amnesia and its variants.
9. Syndromes of damage to the lobes of the brain.
10. Alexia, agrafiya, akalkuliya.

5. Teaching and teaching methods: glossary, TVL, method from a standardized patient, use of digital educational resources.

6. Assessment methods: testing, oral and written interviews, interviews, essays, work with didactic material.

7. Literature:

Basic literature:

1. Е.И. Гусев Неврология и нейрохирургия. В 2 т. Т. 1. Неврология.: учебник / Е. И. Гусев, А. Н. Коновалов, В. И.Скворцова. - 4-е изд. доп.; Мин. образования и науки РФ. Рекомендовано ГБОУ ВПО "Первый Московский гос. мед.ун-т им. И.М. Сеченова". - М.: ГЭОТАР - Медиа, 2015.
2. Ахметова Ж.Б. Семиотика поражения черепно-мозговых нервов : учебное пособие / Ж. Б. Ахметова. - 2-е изд. - Караганда : АҚНҰР, 2019. - 162 с. Экземпляры: всего:15 - ЧЗ-2(2), ЧЗ-3(1), АУЛ(12)
3. Киспаева Т. Т. Атлас по неврологии : учебное пособие / Т. Т. Киспаева. - 2-е изд. - Караганда : АҚНҰР, 2019. - 126 с. Экземпляры: всего:25 - ЧЗ-2(2), ЧЗ-3(1), АУЛ(22)

Supplementary:

1. Неврология. Национальное руководство. Краткое издание: руководство / под ред. Е. И. Гусева. - М. : ГЭОТАР - Медиа, 2016.
2. Абдрахманова, М. Г. Современные принципы реабилитации неврологических больных : учебно методическое пособие / М. Г. Абдрахманова, Е. В. Епифанцева, Д. С. Шайкенов ; М-во здравоохранения и социального развития РК. КГМУ. - Караганда : ИП "Ақнұр", 2015

Electronic resources:

1. Консультант врача. Неврология. Версия. 1. 2 [Электронный ресурс]: руководство. - Электрон.текстовые дан. (127 Мб). - М. : ГЭОТАР - Медиа, 2009.
2. Нейрохирургия [Электронный ресурс] : учебник / С.В. Можаев [и др.]. - 2-е изд., перераб. и доп. - Электрон.текстовые дан. (50,3 Мб). - М.: Изд. группа "ГЭОТАР-Медиа", 2009.
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4. Физиология высшей нервной деятельности [Электронный ресурс]: методические рек.для студентов мед. фак. / сост. Д. А. Адильбекова.- Электрон.текстовые дан. (388 Кб). - Шымкент : Б. и., Б. г. - эл. опт.диск (CD-ROM).

5. Electronic database

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3	StudentAdvisor	http://www.studmedlib.ru/
4	Open University of Kazakhstan	https://openu.kz/kz
5	Law (access to the information and information sector)	https://zan.kz/ru
6	Paragraph	https://online.zakon.kz/Medicine/
7	ScientificElectronicLibrary	https://elibrary.ru/

8	Ashykkitaphana	https:// kitap.kz/
9	Thomson Reuters	www.webofknowledge.com
10	ScienceDirect	http://www.sciencedirect.com/
11	Scopus	https://www.scopus.com/

8. Control(questions, tests, tasks, etc.).

Question 1. Where are the cortical departments of the skin, kinesthetic analyzers.
Question 2. What are the symptoms of their destruction, irritation.
Question 3. Are the concepts of "higher mental functions" and "higher brain functions" identical.
Question 4. What is gnosia? What are the types of agnosia, describe them.
Question 5. What is praxia? What are the types of apraxia, describe them.
Question 6. What is aphasia, what are its types? Describe them.
Question 7. Where are the cortical centers of speech usually located?
Question 8. Describe the clinic lesions of pre- and postcentral convolutions of the brain.
Question 9. What is the clinic lesion of the parietal, temporal, frontal, occipital lobes of the brain?
Question 10. What are higher brain functions?
Question 11. What structures are affected by memory?
Question 12. What is the morphological basis for the formation of higher cerebral functions?
Question 13. Describe the clinic lesions of the internal capsule, corpus callosum.
Question 14. What do you know about the functional specialization of the cerebral hemispheres?
Question 15. What is the "dynamic localization of functions"?

Task 1. Relatives noticed that, leaving the room into the corridor, the patient does not know how to return. I forgot how to put on dress, shoes, use a cup, spoon.

Objectively: there are no motor disorders (paresis), but the patient cannot perform the proposed actions (put on a dressing gown, make a bed), cannot draw a plan of her room, put down a figure from matches.

Explain the symptoms and indicate the location of the lesion.

Task 2. During the examination, the patient revealed: euphoria, a tendency to jokes, reduced criticism, unmotivated acts (urinates on the floor). With a smile, the right nasolabial fold is smoothed, tendon reflexes from the right extremities are increased. There are speech disorders: poorly pronounced hard-to-pronounce words. Speech consists of a limited set of words, repeats the same word during a conversation, and hardly moves to the next word. Gripping movements are expressed. He understands the addressed speech well. The task performs.

Explain the symptoms and indicate the location of the lesion.

Task 3. The patient's left hand became awkward, often dropped objects. There was a feeling that he had “two” hands, sometimes “lost” his left hand.

Objectively: movements in the limbs in full, with sufficient force. Reflexes on the left are lively. There are no pathological reflexes. Deep sensitivity is disturbed in the left hand. He does not distinguish between right and left sides, he has lost the idea of the position of his left hand in space. Does not perform a finger test on the left.

Explain the symptoms and indicate the location of the lesion.

Task 4. After the acute cerebrovascular accident, the patient suffered the following speech disorders: speaks poorly, does not pronounce many sounds, stumbles on difficult-to-pronounce words, speaks simple words (yes, no, want) relatively clearly. Speech addressed to him is not well understood. Follows instructions after demonstrating what needs to be done.
1. What is the type of dysfunction.
2. Determine the level of damage.

Task 5. Relatives brought to the reception a man of 54 years. The patient himself does not care. According to relatives over the past 6-8 months, the man has changed a lot: he became irritable, but at the same time he is often in an elevated mood, jokes a lot, not choosing a place and time for jokes; became untidy, stopped going to work without explanation. He can sit in a chair all day, doing nothing, if not encouraged. Does not watch TV, does not read books. The style of speech has changed: briefly answers questions, when involved in a conversation, he often speaks in cliches, beaten up phrases.
1. What is the syndrome of impaired function.
2. Determine the level of damage.

Task 6. After surgery for a brain tumor, the patient is helpless: he cannot use ordinary household items unless he feels them. Sometimes it behaves like a blind man, but does not stumble on objects, leaves the door. He does not recognize relatives in person, but immediately finds out who came if the person speaks.
1. What is the type of dysfunction.
2. Determine the level of damage.

Task 7. During the study of memory, it is found that the patient does not remember the words presented to him: of 3 words in 1 min. remembered only 2. In the sample to memorize 5 words after three presentations, he reproduced only 3 words. The semantic clue did not help. After switching attention and returning to learned words, I remembered only 1 word.
1. What is the type of dysfunction.
2. Determine the level of damage.

Task 8. A patient came to see a doctor complaining that he had “forgotten” the name of all the surrounding things. He understands well what kind of object this is, can describe its function: “what they eat,” “what they sit on,” etc. Freely uses all items.
1. What is the type of dysfunction.
2. Determine the level of damage.

Practical lesson№7

1. Topic: Shells of the brain. Liquor Meningeal syndrome, intracranial hypertension syndrome.Modern laboratory-instrumental, neuroimaging methods of research in neurology.
2. Purpose: to acquaint students with the basics of topical diagnosis of damage to the meninges, lumbar puncture technique, instrumental and neuroimaging diagnostic methods in neurology.
3. Learning objectives:

- the formation of knowledge among students about the features of the topography of the membranes of the brain and spinal cord, secretion and characteristics of cerebrospinal fluid in normal and pathological conditions, as well as the main instrumental research methods in neurology;
- the formation of skills to determine meningeal symptoms, diagnose meningeal syndrome, diagnose intracranial hypertension syndrome, interpret the general analysis of cerebrospinal fluid, examine a patient with diseases and injuries of the nervous system.

4. The main issues of training:

1. Features of the topography of the membranes of the brain and spinal cord.
2. Subdural, subarachnoid spaces.
3. Sinuses of a dura mater.
4. The structure of the blood-brain barrier.
5. Secretion, circulation and resorption of cerebrospinal fluid
6. The characteristic of a cerebrospinal fluid is normal and pathological.
7. Intracranial hypertension syndrome.
8. Lumbar puncture, indications, contraindications, complications.
9. Clinical liquorology
10. Electrophysiological research methods: rheoencephalography, electroencephalography, echoencephalography, electromyography, electroneuromyography.
11. X-ray research methods: craniography, vertebrography, myelography.
12. Neuroimaging methods of research: computed tomography, magnetic resonance imaging, etc.
13. Ocular fundus.
14. Clinical genetics methods.
15. Neuroimaging research methods in neurology.

5. Methods of training and teaching: glossary, Cse-study, role-playing game, the use of digital educational resources.

6. Assessment methods: testing, oral and written interviews,interviews, essays, work with didactic material.

7. Literature:

Basic literature:

1. Е.И. Гусев Неврология и нейрохирургия. В 2 т. Т. 1. Неврология.: учебник / Е. И. Гусев, А. Н. Коновалов, В. И.Скворцова. - 4-е изд. доп.; Мин. образования и науки РФ. Рекомендовано ГБОУ ВПО "Первый Московский гос. мед.ун-т им. И.М. Сеченова". - М.: ГЭОТАР - Медиа, 2015.
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Supplementary:

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1. Консультант врача. Неврология. Версия. 1. 2 [Электронный ресурс]: руководство. - Электрон.текстовые дан. (127 Мб). - М. : ГЭОТАР - Медиа, 2009.

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4	Open University of Kazakhstan	https://openu.kz/kz
5	Law (access to the information and information sector)	https://zan.kz/ru
6	Paragraph	https://online.zakon.kz/Medicine/
7	ScientificElectronicLibrary	https://elibrary.ru/
8	Ashykkitaphana	https:// kitap.kz/
9	Thomson Reuters	www.webofknowledge.com
10	ScienceDirect	http://www.sciencedirect.com/
11	Scopus	https://www.scopus.com/

8. Control (questions, tests, tasks, etc.).

Question 1. What are the shells of the brain and spinal cord.
Question 2. Describe meningeal syndrome.
Question 3. What meningeal symptoms do you know. How are they explored.
Question 4. What are the indications and contraindications for lumbar puncture.
Question 5. How is lumbar puncture performed?
Question 6. Describe liquorodynamic tests and their essence.
Question 7. What are the signs of blockade of the cerebrospinal fluid tract
Question 8 . What is the normal composition and pressure of the cerebrospinal fluid?
Question 9. What is cell-protein dissociation.Protein-cell dissociation.

1. Contrast enhancement for computed tomography of the brain is used in cases where it is necessary:
a) to identify cerebral edema associated with stroke
b) establish hemorrhagic impregnation of the brain contusion area *
c) determine hemorrhagic cerebral infarction
d) evaluate the state of the blood-brain barrier regardless of the nature of the cerebral process
2. The resolution of computed tomography of the brain has limitations and does not allow to determine CT-contrast pathological foci in the brain with a diameter of less than:
a) 1.5-1.5
b) 2.5-2.5

c) 3.5-3.5 *
g) 4,5-4,5

3. The decisive role in the diagnosis of brain death from the above examination methods is assigned to:
a) electroencephalography
b) computed tomography
c) angiography
d) echoencephalography

4. A contraindication for magnetic resonance imaging is
a) an iodine allergy
b) opencraniocerebral trauma
c) severe intracranial hypertension
d) the presence of foreign metal bodies *
e) hemorrhage in a brain tumor

5. Normal cerebrospinal fluid pressure and in the sitting position it is equal to:
a) 110-180mm. water. *
b) 280-310mm. water.
c) 220-260mm water column
d) 160-220mm. water.

6. Pussep'sliquorodynamic test is caused by
a) compression of the cervical veins
b) pressure on the anterior abdominal wall
c) head tilted forward
d) extension of the leg previously bent at the knee and hip joints

7. In the absence of a subarachnoid space block during Kveckenstedt's test, cerebrospinal fluid pressure increases
a) 10 times
b) 6 times
c) 4 times
d) 2 times

8.The chloride content in the cerebrospinal fluid normally ranges from
a) 80-110 mmol / l
b) 40-60 mmol / l
c) 200-260 mmol / L
g) 120-130 mmol / L

9. An epidemiological history is important if you suspect
a) meningococcal meningitis
b) herpeticmeningoencephalitis
c) fungal meningitis
d) meningitis caused by Pseudomonas aeruginosa

10. According to electroencephalography (EEG) can be judged on:
a) localization of the pathological focus
b) the functional state of the brain
c) the etiology of a disease

11. Magnetic resonance imaging has advantages over computed tomography in the diagnosis of:
a) foci of demyelination in multiple sclerosis and other demyelinating diseases
b) spinal pathological foci

c) fractures of the pyramid of the temporal bone
d) hemorrhagic stroke
e) ischemic stroke

Practical lesson№8.

1.Topics: Blood supply to the brain and spinal cord. Vascular diseases of the central nervous system.

2. Purpose: to acquaint students with the basics of topical diagnosis of lesions of the nervous system, accompanied by cerebrovascular accidents, diagnosis, prognosis, differential diagnosis, clinic, prevention of vascular diseases of the central nervous system.

3. Learning objectives:

- the formation of students' knowledge about the features of the vascular organization of the spinal cord and brain, diagnosis, primary and secondary prevention of vascular diseases of the brain.
- the formation of skills, examination of patients with diseases of the nervous system, determining the degree of loss of consciousness, conducting topical and differential diagnosis of focal neurological symptoms.

4. The main issues of the topic:

1. Anatomical and physiological features of cerebral circulation.
2. Carotid arteries.
3. Vertebro-basilar system.
4. Willis circle.
5. Circle Zakharchenko.
6. The frequency and prevalence of vascular pathology of the brain and spinal cord.
7. Blood supply to the brain and spinal cord.
8. Etiology and pathogenesis of cerebral and spinal circulation disorders.
9. Classification of cerebral and spinal circulation disorders.
10. Clinic of cerebral and spinal circulation disorders.
eleven. Methods and possibilities of instrumental diagnostics, formulation of a topical diagnosis.

5. Methods of training and teaching: a glossary, Case-study based on a clinical case (CBL), work with patients under the guidance of a teacher, the use of digital educational resources.

6. Assessment methods: testing, oral and written questioning,interviewing, essays, solving situational problems.

7. Literature:

Basic literature:

1. Е.И. Гусев Неврология и нейрохирургия. В 2 т. Т. 1. Неврология.: учебник / Е. И. Гусев, А. Н. Коновалов, В. И.Скворцова. - 4-е изд. доп.; Мин. образования и науки РФ. Рекомендовано ГБОУ ВПО "Первый Московский гос. мед.ун-т им. И.М. Сеченова". - М.: ГЭОТАР - Медиа, 2015.
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Supplementary:

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Electronic resources:

1. Консультант врача. Неврология. Версия. 1. 2 [Электронный ресурс]: руководство. - Электрон.текстовые дан. (127 Мб). - М. : ГЭОТАР - Медиа, 2009.
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№	Name	Link
1	RepositorySKMA	http://lib.ukma.kz/repository/
2	RepublicanInteruniversityDigitalLibrary	http://rmebrk.kz/
3	StudentAdvisor	http://www.studmedlib.ru/
4	Open University of Kazakhstan	https://openu.kz/kz
5	Law (access to the information and information sector)	https://zan.kz/ru
6	Paragraph	https://online.zakon.kz/Medicine/
7	ScientificElectronicLibrary	https://elibrary.ru/
8	Ashykkitaphana	https:// kitap.kz/
9	Thomson Reuters	www.webofknowledge.com
10	ScienceDirect	http://www.sciencedirect.com/
11	Scopus	https://www.scopus.com/

8.Control (questions, tests, tasks, etc.).

Task 1. Patient V., 72 years old, was taken to the emergency room by ambulance. The accompanying documents indicate that the patient was found lying on a bench in the park. Consciousness did not lose. During the on-site examination, impaired movement in the right hand and difficulty speaking. He uttered separate words, from which it was possible to understand that he suddenly had dizziness. No vomiting noted.

On examination: consciousness is preserved, but lethargic, apathetic. He does not enter into voice contact. The survey responds with a grimace of displeasure. The pulse is arrhythmic, an average of 104 beats per minute. Heart sounds are deaf, HELL - 150/100. The pulsation of the great vessels of the head and neck is satisfactory. Breathing is free, rhythmic, 18 per min. The pupils are the same. The right corner of the mouth is lowered. The tongue does not protrude. The proboscis reflex is expressed. Constantly moves with his left hand, his right is

motionless. The right foot is turned outwards. The movements of the right leg in response to tingling needles are limited. Tendon reflexes on the right are higher than on the left. On the right foot, the Babinsky reflex is invoked. There are no meningeal symptoms.

The fundus of the eye: the optic nerve discs are pale pink, their borders are clear, the arteries are moderately narrowed, convolutions, veins are dilated.

ECHOEG: M-echo displacement is not detected, many additional teeth.

ECG: atrial fibrillation, tachysystolic form; diffuse muscle changes.

Blood test: hemoglobin 120 g / l, white blood cells - 6000 * 10^9, ESR - 12 mm / hour.

Establish and justify a topical diagnosis.

Task 2.A 40-year-old patient suffers from hypertension for several years. Suddenly, during the washing of clothes, she lost consciousness and fell. The face is hyperemic. The breath is rapid, noisy. The pupils are dilated. Pupils do not react to light. The pendulum-like, slow eye movement in the horizontal direction is “floating eyes”. Doesn’t react to face injections. The corneal reflex on the left is absent, on the right - weakened, the left corner of the mouth is omitted. Symptom of the “sail” of the left cheek. Foamy saliva is released from the right corner of the mouth. Hands are brought to the body, hands are bent and pronounced, fingers are fisted. The legs are extended, increasing muscle tone in the extensors. The tone periodically decreases and motor restlessness of the right arm and leg is noted, the raised left arm and leg fall like whips. Stiff neck muscles no. Kernig's symptom is mildly pronounced on both sides. Doesn’t react to body injections. Tendon and periosteal reflexes are enlivened, to the left above. Clonus of the left foot.Symptom of Babinsky on both sides. In response to irritation with ether, an injection, or with sharp bending of the toes, a “triple bending” of the legs occurs.

During the inspection there was vomiting. Pulse 106, tense, rhythmic. There is an admixture of blood in the cerebrospinal fluid. Heart sounds are muffled. Emphasis of the second tone on the aorta. HELL - 230/120. Temperature 38.7 ° Leukocytosis 12,600 * 10^9.A few hours after the start of pulse 120, poor filling. The breath of chain stokes. Profuse sweat. The hands and feet are cyanotic, cold. HELL — 180/105. Muscle hypertension was replaced by hypotension, more pronounced in the left arm and leg. Tendon reflexes disappeared. Temperature 40 °.Pulmonary edema. On the echoencephalogram, there is no displacement of the M-echo.

Set and justify the topical diagnosis.

Task 3.A 60-year-old patient over the past months periodically complained of a headache, tinnitus, rapidly onset fatigue, and a bad and restless sleep. Three days before admission to the clinic, she woke up at night from a headache and found the weakness of her right arm. Then she fell asleep again. In the morning, the movements of the right arm were completely lost, the weakness of the right leg appeared, and speech changed. The borders of the heart are extended to the left. Heart sounds are low. Pulse 72, arrhythmic. The temporal arteries are tight to the touch, meandering blood pressure - 110/60. Temporal-humeral coefficient 0.3.

The patient is oriented in space and in time. Performs all tasks correctly. Speech is slow, slurred. He picks up words with difficulty. There are literal paraphases and perseveration of speech. Arteries narrowed at the fundus. The right nasolabial fold is flattened. When protruding from the mouth, the tongue deviates to the right. The function of the remaining cranial nerves is not impaired. He does not make active movements with his right hand, leg movements are

limited. The movements of the left arm and leg are not limited. Increased tone in the flexor muscles of the right hand and, to a lesser extent, in the extensors of the leg. All kinds of sensitivity saved. All tendon and periosteal reflexes are significantly higher on the right. Symptoms of Babinsky and Rossolimo on the right.Serum cholesterol 7.4 mmol / L.

Establish and justify the topical diagnosis.

Task 4. The patient was taken to hospital with complaints of an intense headache that occurred 2 hours ago. HELL - 190/100 Inhibited. The right palpebral fissure is already left. The left nasolabial fold is smoothed. Hemiparesis, hypertonicity in the muscles of the left limbs, high tendons and the presence of pathological reflexes on the left leg. ECHO-EG - there are no dislocations of the median structures of the brain. REG - lengthening the anacrotic phase, rounding of the apex, the absence of a dicrotic tooth in the catacrotic phase. The latter has the form of a plateau. A blood test revealed activation of the coagulation system.

Establish and justify a topical diagnosis.

Task 5.A 64-year-old patient was taken to hospital in an extremely serious condition. According to the story of relatives, he suffers from hypertension for more than 20 years. The day before he complained of a headache, dizziness, general weakness. In the morning, getting out of bed, suddenly lost consciousness, fell. There was vomiting. On examination, consciousness is absent. The skin of the face, chest, extremities is hyperemic. HELL — 220/100. The pulse of 96 beats per min., Tense. The breath of chain stokes. The head and eyeballs are turned to the left. The mouth is half open. Stiff neck.Kernig symptom on both sides. The pupils are dilated. Corneal reflexes are not caused. The right nasolabial fold is smoothed. The right foot is rotated outwards. Tendon reflexes are absent. Does not respond to injections. On the right, reflexes of Babinsky, Rossolimo, Gordon ECHO-EG are caused - dislocation of the median structures of the brain from left to right by 5 mm. Lumbar puncture: cerebrospinal fluid pressure of 180 mm of water, the cerebrospinal fluid is intensely stained with blood. Computed tomography of the brain revealed a zone of increased density of a spherical shape in the left parietal-temporal region, a shift of the middle structures from left to right by 10 mm.

Establish and justify a topical diagnosis.

1. The diagnosis of transient cerebrovascular accident is established if focal cerebral symptoms undergo complete regression no later than

a) 1 day

b) 1 week
c) 2 weeks

d) 3 weeks

d) 1 month

2. The stages of discirculatory encephalopathy are distinguished on the basis of

a) the degree of disability

b) changes in EEG and REG indicators

c) the severity of mental disorders

d) the degree of increase in blood pressure

e) true a) and c)

3. The diagnosis of a stroke with reversible neurological symptoms

(minor stroke) is established if the focal cerebral symptoms undergo complete regression no later than

a) 1 week

b) 3 weeks

c) 1 month

d) 3 months

e) 6 months

4. When formulating the diagnosis of vascular brain diseases according to the classification of the Research Institute of Neurology of the Academy of Medical Sciences of the Russian Federation, a

) etiology of the vascular process

b) the nature of the cerebrovascular accident

c) the affected vascular pool

d) the clinical syndrome

e) disability

5. Thrombolytic therapy for blockage of the blood vessels of the brain is advisable in case

a) clogging duration less than 2 hoursduration less than 4 hours

b) cloggingc)

procurement duration Orcs less than a day

d) hemorrhagic syndrome

e) the age of obstruction does not mattercase of

6. Inparenchymal-subarachnoid hemorrhage it is mandatory a

) loss of consciousness

b) bloody cerebrospinal fluid

c) displacement of the mid-echo signal

d) contralateral hemiparesis

e) all of the above

7. With hemorrhage the presence in the cerebellum is a

) loss of consciousness, hemiparesis

b) dynamic ataxia

c) oculomotor disorders

d) true a) and b)

e) true b) and c)

8. A patient, 40 years old, was delivered to the hospital by ambulance the state of psychomotor agitation accompanied by an employee, according to whom, today at work, the patient suddenly complained of a very severe headache, fell, and there was repeated vomiting. Previously, I considered myself healthy, in the history of only colds. On examination: stiff neck four cm.,Kernig symptom at an angle of 160 ° from two sides. Ptosis on the left, divergent strabismus due to the left eyeball.Anisocoria, left pupil wider. Tendon reflexes on the hands of medium liveliness, knee and Achilles reflexes from the legs are inhibited. Symptom of Babinsky on both sides.Body temperature 37.6 ° C. HELL 170/90 mm Hg Pulse 86 in 1min., Rhythmic.From the internal organs without pathology. Computed tomography of the brain indicates blood accumulation in subarachnoid spaces. When lumbar puncture received evenly stained with blood cerebrospinal fluid flowing under high pressure (300 mm water column). Make a presumptive clinical diagnosis:

a) tuberculous meningitis

b) subarachnoid hemorrhage

c) parenchymal hemorrhage in the left cerebral hemisphere

d) embolic infarction in the left cerebral hemisphere.

Practical lesson №9.

1.Topic: The concept of epilepsy. Etiology, pathogenesis, classification of epilepsy.

2. Purpose: to introduce students to the etiology, pathogenesis, clinic, diagnosis and differential diagnosis of paroxysmal conditions in neurological practice.

3. Learning objectives:

- the formation of students' knowledge about episodic and paroxysmal disorders of consciousness and epilepsy.
- the formation of skills to conduct differential diagnosis of paroxysmal conditions in neurology (epilepsy and epileptic syndromes, headaches and trigeminal pains).

4. The main issues of the topic:

1. Definition of paroxysmal conditions, etiopathogenetic classification of seizures.

2. Definition of epilepsy as a disease.
3. Etiology of exogenous and endogenous factors, the pathogenesis of epilepsy.
4. Classification of epileptic seizures.
5. Generalized convulsive epileptic seizures -clinic, age-related features.
6. Absences (simple and complex) -clinic, characteristic in different age periods.
7. Clinic of partial seizures (motor, sensory, vegeto-visceral, with a violation of mental functions, with secondary generalization), age-related features of the manifestation.
8. Epileptic status and its treatment.
9. Anoxic seizures: clinic, differential diagnosis with epileptic seizures.
10. Mental seizures (hysterical, affectively respiratory): clinic, differential diagnosis with epileptic.

eleven.Metabolic seizures (spasmophilia, hypoglycemic): clinic, differential diagnosis with epileptic.

12. Hypnosis seizures (nightmare, nightly fears, night myoclonus) clinic, differential diagnosis with epileptic.

5. Methods of training and teaching: glossary, case study, work with patients under the guidance of a teacher, work in pairs, the use of digital educational resources.

6. Assessment methods: testing, oral and written questioning,interviewing, essays, solving situational problems.

7. Literature:

Basic literature:

1. Е.И. Гусев Неврология и нейрохирургия. В 2 т. Т. 1. Неврология.: учебник / Е. И. Гусев, А. Н. Коновалов, В. И.Скворцова. - 4-е изд. доп.; Мин. образования и науки РФ. Рекомендовано ГБОУ ВПО "Первый Московский гос. мед.ун-т им. И.М. Сеченова". - М.: ГЭОТАР - Медиа, 2015.
2. Ахметова Ж.Б. Семиотика поражения черепно-мозговых нервов : учебное пособие / Ж. Б. Ахметова. - 2-е изд. - Караганда : АҚНҰР, 2019. - 162 с. Экземпляры: всего:15 - ЧЗ-2(2), ЧЗ-3(1), АУЛ(12)
3. Киспаева Т. Т. Атлас по неврологии : учебное пособие / Т. Т. Киспаева. - 2-е изд. - Караганда : АҚНҰР, 2019. - 126 с. Экземпляры: всего:25 - ЧЗ-2(2), ЧЗ-3(1), АУЛ(22)

Supplementary:

1. Неврология. Национальное руководство. Краткое издание: руководство / под ред. Е. И. Гусева. - М. : ГЭОТАР - Медиа, 2016.**в)**
2. Абдрахманова, М. Г. Современные принципы реабилитации неврологических больных : учебно методическое пособие / М. Г. Абдрахманова, Е. В. Епифанцева, Д. С. Шайкенов ; М-во здравоохранения и социального развития РК. КГМУ. - Караганда : ИП "Ақнұр", 2015

Electronic resources:

1. Консультант врача. Неврология. Версия. 1. 2 [Электронный ресурс]: руководство. - Электрон.текстовые дан. (127 Мб). - М. : ГЭОТАР - Медиа, 2009.
2. Нейрохирургия [Электронный ресурс] : учебник / С.В. Можаев [и др.]. - 2-е изд., перераб. и доп. - Электрон.текстовые дан. (50,3 Мб). - М.: Изд. группа "ГЭОТАР-Медиа", 2009.
3. Нервные болезни для врачей общей практики [Мультимедиа]: учебное пособие / под ред. И. Н. Денисова. - Электрон.дан. (105 Мб). - Алматы: ATPGKazakhstan при участии Кордис&Медио, 2006.

4. Физиология высшей нервной деятельности [Электронный ресурс]: методические рек.для студентов мед. фак. / сост. Д. А. Адильбекова.- Электрон.текстовые дан. (388 Кб). - Шымкент : Б. и., Б. г. - эл. опт.диск (CD-ROM).
5. Electronic database

№	Name	Link
1	RepositorySKMA	http://lib.ukma.kz/repository/
2	RepublicanInteruniversityDigitalLibrary	http://rmebrk.kz/
3	StudentAdvisor	http://www.studmedlib.ru/
4	Open University of Kazakhstan	https://openu.kz/kz
5	Law (access to the information and information sector)	https://zan.kz/ru
6	Paragraph	https://online.zakon.kz/Medicine/
7	ScientificElectronicLibrary	https://elibrary.ru/
8	Ashykkitaphana	https:// kitap.kz/
9	Thomson Reuters	www.webofknowledge.com
10	ScienceDirect	http://www.sciencedirect.com/
11	Scopus	https://www.scopus.com/

8. Control (questions, tests, tasks, etc.).

Task 1.A 14-year-old patient is concerned about convulsive attacks, which first occurred 2 years ago. A history of traumatic brain injury three years ago. Cramps begin in the muscles of the left hand with a transition to the facial muscles of the left half of the face, accompanied by a turn of the head and eyes to the left. Consciousness is not lost. On the left is determined the smoothness of the nasolabial folds, mild hemiparesis, increased tendon reflexes. EEG - interhemispheric asymmetry due to paroxysmal activity in the right frontal region. ECHO-EG - there are no dislocations of the median structures of the brain.

Establish and justify a clinical diagnosis.

Problem 2.A patient of 18 years from the age of ten is concerned about convulsive attacks. Initially, the attacks were characterized by unpleasant sensations behind the sternum, palpitations, hyperhidrosis, blanching of the skin and mucous membranes of the face. Over the past year, the listed phenomena are followed by loss of consciousness with subsequent tonic and clonic convulsions. History of frequent tonsillitis, acute respiratory infections. 'There is spontaneous nystagmus when viewed from the side, bilateral revitalization of tendon reflexes. EEG - diffuse dysrhythmia with the presence of outbreaks of paroxysmal activity in the anterior hemispheres. ECHO-EG - there are no dislocations of the median structures of the brain.

Establish and justify a clinical diagnosis.

Task 3. Patient M., 21, a student, complains of a sharp headache. Attacks of headaches first occurred about five years ago, begin, as a rule, in the right frontotemporal region, quickly increase in intensity and spread to the entire half of the head and eyeball, accompanied by repeated vomiting. It is easier to wash your head with hot water and sleep.

The mother and elder sister of the patient suffer from headaches.

On examination: the patient is pale, lies with his eyes closed, bright light and eyeball movements intensify the pain. The pulse is rhythmic, speeded up to 90 beats per minute. There are no focal and meningeal symptoms. HELL — 110/70.

Establish and justify the clinical diagnosis of

Task 4. . A 14-year-old patient is troubled by convulsive attacks that first occurred 2 years ago. A history of traumatic brain injury three years ago. Cramps begin in the muscles of the left hand with a transition to the facial muscles of the left half of the face, accompanied by a turn of the head and eyes to the left. Consciousness is not lost. On the left is determined the smoothness of the nasolabial folds, mild hemiparesis, increased tendon reflexes. EEG - interhemispheric asymmetry due to paroxysmal activity in the right frontal region. ECHO-EG - there are no dislocations of the median structures of the brain.
Establish and justify the clinical diagnosis of

Task 5. The patient is 53 years old. 20 years ago she was ill with malaria. Treated with quinine. Malaria attacks have stopped. At the age of 45, she suffered a concussion. Three years ago, pain suddenly appeared in the region of the heart, palpitations, chills, and blood pressure increased to 230/140. The attack lasted about half an hour and ended with salivation, frequent urination, loose stools, loss of consciousness and cramps. Since then, the same attacks were observed in the patient 3-4 times a week. After radiotherapy, the attacks temporarily stopped, but after six months they resumed. During the seizures, the asymmetry of body temperature and blood pressure in the right arm were 240/130 and 210/110 on the left arm. Pulse -140. In the interictal period, blood pressure on the right is 130/80. 115/70 on the left.Pulse 76. There are no signs of damage to the somatic nervous system. Dermographism is red, spilled, persistent. Pilomotor reflexes are strengthened. The hands and feet are moist, cold, marbling skin. An electrocardiogram indicates dystrophic changes in the myocardium.
Establish and justify a clinical diagnosis.

1. The frequency of seizures with an epistatus:
   a) 1-2 per month
   b) 2-4 per week
   c) 2-4 per hour
2. With an epistatus, be prepared for:
   a) novocaine blockade
   b) lumbar puncture
   c) ECG
3. Help with a large convulsive seizure:
   a) open the belt, collar.
   b) give a drink of cold water.
   c) insert a spatula between the teeth
   d) give a phenobarbital tablet
   e) injectseduxen 2.0 intramuscularly
   f) control the cramps
   g) make a cleansing enema and chloral hydrate in an enema
   h) put a soft under the head.
   4. At the crossroads, crossing the street, a 40-year-old man screamed loudly, fell without consciousness, hit his head on asphalt. Blood flows from a dissected wound. The man first stretched out, then he began to beat his hands and feet on the asphalt. Pink foam flows out of the mouth. What kind of disease did the student think about? schools?
   a) Concussion of the brain.
   b) Injury to the soft tissues of the head.
   c) Small convulsive seizure.
   d) A large convulsive seizure.
   5. A symptom observed during an epipressure, in contrast to fainting:
   a) pallor of the skin.

b) bite of the tongue.
c) shallow breathing.
d) a quick return of consciousness.
e) drop in blood pressure.
6. Epilepsy refers to:
a) Edogenous diseases.
b) Endogenous-organic diseases.
c) Exogenous diseases.
d) Exogenously organic diseases.
7. The sequence of stages of a large convulsive seizure is as follows:
a) Aura, tonic phase, clonic phase, seizure generalization phase, post-epileptic sleep.
b) Aura, clonic phase, tonic phase, post-epileptic sleep.
c) Aura, tonic phase, clonic phase, post-epileptic sleep.
d) Aura, clonic phase, tonic phase, generalization phase of seizures, sleep.
8. Status epilepticusis ...
a) The mental state of the patient with epilepsy.
b) The condition of the patient during a seizure.
c) A series of continuously following one after another seizures.
9. Paroxysmal disorders are divided into:
a) prodromal, convulsive, generalized.
b) prodromal, convulsive, convulsive.
c) prodromal, convulsive, non-convulsive, generalized.
d) prodromal, generalized.
e) convulsive, non-convulsive.
f) convulsive, generalized.

Compiled by: assistant of the department Ysetova A.A.

assistant of the department Abdraimova S.O

Head of the Department, PhD, Professor Zharkinbekova N.A.

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