

MEDICAL UNIVERSITY - PLEVEN

FACULTY of MEDICINE

DEPARTMENT of “NEUROLOGY AND NEUROSURGERY”

For the Academic Year 2020/2021

EDUCATIONAL PROGRAMME

IN NEUROGY

FOR EDUCATION SPECIALITY “MEDICINE”

EDUCATION – QUALIFICATION DEGREE “MASTER”

PLEVEN

2020

In unified state requirements - mandatory.

In curriculum of MU – Pleven - mandatory

Semester – Seventh and Eight

Workload – 120 hours: 60 hours of lectures and 60 hours of exercises

Maximum number of credits: 5.5

Teachers:

Assoc. prof. Dr Maya Danovska, MD, PhD

Assist. Dr Verjina Simeonova, MD

Assist. Dr Diana Marinova, MD

Assist. Dr Emilia Ovcharova, MD

Assist. Dr Plamen Stoev, MD

Assist. Dr Nikolai Vasilev, MD

Assist. Dr Iliya Duhlenki, MD

PURPOSE AND OBJECTIVES OF TRAINING:

The teaching of neurology diseases aims to prepare the students for general and special neurology, and at the end of the training in IVth – course, they would be able to shape both the neurological syndromes and focus to the nozological identity of neurological diseases. To realize this goal during the study period the following tasks should be done: to combine their knowledge of anatomy and physiology with the nervous system / central and peripheral / for the formation of neurological syndromes.

- 1 To learn how to have someone's neurological status.
- 2 To explore the informative value of the various highly specialized and diagnostic methods used in neuroscience: CSF (celebro-spinal fluid), radiographic, electrophysiology, MRI and others.
- 3 To be able to form a diagnostic and differential diagnostic plan.
- 4 To be able to form the therapeutical plan.

FORMS OF TRAINING:

Lectures

Training and practical seminars

METHODS OF TRAINING:

Lectures summary

Practical seminars

Discussions

MONITORING AND ASSESSMENT OF KNOWLEDGE:

1. current assessment: oral examination before the patient's bedside during each exercise.
2. assessment made by taking written tests at the end of the winter and the summer semester.
3. final evaluation by an oral examination.

Educational Program in Neurology

LECTURES IN NEUROLOGY FOR THE ACADEMIC YEAR OF 2020/ 2021.

№	TOPIC	HOURS
1.	Reflex activity. Normal and pathological reflexes.	2h.
2.	Sensation – anatomy and physiology. Methods of examination. Central and peripheral sensory signs and syndromes. .	2h.
3.	Motor activity Pyramidal system. Muscle tone. Syndromes of upper and lower motor neuron lesions.	2h.
4.	Cerebellum - anatomy and physiology. Coordination. Cerebellar and other discoordination syndromes.	2h.
5.	Motor activity. Extrapyramidal system – anatomy and physiology. Extrapyramidal syndromes.	2h.
6.	Peripheral nervous system - anatomy and physiology. Syndromes of spinal root, spinal nerve, plexuses and peripheral nerve lesions.	2h.
7.	Cranial nerves. Bulbar and pseudobulbar palsy.	2h.
8.	Brain stem. Alternating brain and spinal cord syndromes.	2h.
9.	Autonomic nervous system. Central and peripheral autonomic disorders. Hypothalamic syndromes	2h.
10.	Consciousness and mental disorders. Brain death.	2h.
11.	Cortical lesion syndromes - frontal, temporal, parietal, occipital.	2h.
12.	High cortical functions – speech, gnosis, praxis. Disorders of the High cortical functions – aphasia, agnosia, apraxia.	2h.
13.	Anatomy and physiology of the cerebral circulation - arterial system, carotid system, vertebrobasilar system. Extracranial and intracranial anastomoses.	2h.
14.	Syndromes of increased intracranial pressure and cerebral herniation. Meningeal syndrome.	2h.
15.	Meningitis (aseptic, pyogenic, tuberculous).	2h.
16.	Viral encephalitis and encephalomyelitis. Acute anterior poliomyelitis. Epidemic (lethargic) encephalitis.	2h.
17.	Multiple sclerosis.	2h.
18.	Diseases of the peripheral nervous system. Radiculitis and radiculopathies. Intervertebral disk prolapse.	2h.
19.	Diseases and injuries of the plexuses and peripheral nerves. Polyneuritis and polyneuropathies. GBS. Bell's palsy.	2h.
20.	Cerebrovascular disease. Cerebral haemorrhage. Subarachnoid haemorrhage.	2h.
21.	Cerebral infarction. Transient ischemic attacks. Chronic (or progressive) cerebral ischemia.	2h.
22.	Differential diagnosis and treatment of the cerebrovascular disorders.	2h.
23.	Degenerative diseases of the central nervous system: Parkinson's disease, hepatocerebral dystrophy (Willson's disease), hereditary spinocerebellar ataxias. Neuromuscular disorders: Amyotrophic lateral sclerosis, myasthenia gravis, progressive muscular dystrophy.	2h.
24.	Brain tumors. Tumors of the spine and spinal cord. Brain abscess.	2h.
25.	Traumatic brain and spinal cord injuries. Delayed sequelae of traumatic brain injury.	2h.
26.	Epilepsy. Types of epileptic seizures. Epileptic status. Diagnosis and treatment.	2h.
27.	Cognitive disorders. Mild Cognitive Impairment. Dementia. Alzheimer disease. Vascular dementia.	2h.
28.	Early and late neurosyphilis. Tabes dorsalis.	2h.
29.	Headaches. Migraine and other types of headaches. Trigeminal neuralgia.	2h.

	Diagnosis and treatment.	
30.	Neurosis and neurotic conditions. Diagnosis and treatment.	2h.

**PRACTICAL SEMINARS
IN NEUROLOGY FOR THE ACADEMIC YEAR OF 2020/ 2021**

1.	Reflex activity. Definition. Classification. Methods of examination. Normal reflexes - exteroceptive and proprioceptive reflexes.	2h.
2.	Reflex activity. Abnormal reflexes. Extensor tonic and flexor clonic reflexes.	2h.
3.	Sensation. Anatomy and physiology of the sensory system. Classification. Methods of examination. Sensory symptoms and signs.	2h.
4.	Sensory disorders- sensory symptoms and syndromes.	2h.
5.	Motor activity- methods of examination. Muscle power. Muscle tone. Upper and lower motor neuron lesion. Bulbar and pseudobulbar palsy.	2h.
6.	Motor activity. Methods of examination of coordination. Cerebellar syndromes. Syndromes of imbalance.	2h.
7.	Extrapyramidal syndromes. Parkinson syndrome, choreoathetosis, and others.	2h.
8.	Syndromes of PNS lesions: lesions of radial, femoral, sciatic and other peripheral nerves. Plexuses.	2h.
9.	Syndromes of cranial nerve lesions (I-VI-th).	2h.
10.	Syndromes of cranial nerve lesions (VII-XII-th).	2h.
11.	Neuroimaging methods of examination - CT, MRI, angiography. Neurosonography.	2h.
12.	CSF examination. Anatomy and physiology of the CSF system. CSF examination. CSF syndromes	2h.
13.	Electrophysiology in neurology. EEG. EMG. Evoked potentials.	2h.
14.	Fundamentals of physiotherapy and rehabilitation of neurological diseases. C	2h.
15.	Practical exam. Synopsis of neurological examination.	2h.
16.	Meningitis (aseptic, pyogenic, tuberculous).	2h.
17.	Encephalitis and Encephalomyelitis.	2h.
18.	Multiple sclerosis, disseminated encephalomyelitis, transverse myelitis.	2h.
19.	Radiculitis and Radiculopathies. Intervertebral disk prolapsus.	2h.
20.	Bell's palsy. Trigeminal neuropathy. Polyneuritis and polyneuropathies. Guillain-Barré syndrome.	2h.
21.	Cerebrovascular Disease (TIA, RIND, Brain Infarction, Small vessel disease)..	2h.
22.	Intracerebral Hemorrhage. Subarachnoid Hemorrhage.	2h.
23.	Dementia: diagnosis and treatment.	2h.
24.	Degenerative diseases of the Central Nervous System: Parkinson's disease, Hepatocerebral dystrophy (Wilson's disease), Hereditary spinocerebellar ataxias	2h.
25.	Neuromuscular disorders: Amyotrophic Lateral Sclerosis, Myasthenia Gravis, Progressive Muscular Dystrophy.	2h.
26.	Brain and spinal cord tumors. Brain abscess	2h.

27.	Traumatic brain and spinal cord injuries. Delayed sequelae of brain injuries.	2h.
28.	Epilepsy. Epileptic status.	2h.
29.	Neurosyphilis. Tabes dorsalis.	2h.
30.	Neuroses and neurotic conditions. Migraine. Tension headache. Cluster headache	2h.

METHODS AND CONTROL:

CURRENT CONTROL:

A written test on the topics from the General Neurology at the end of the first semester, and a written test on Clinical Neurology at the end of the second semester.

FINAL EXAM:

The final exam should be done at the end of the second semester and includes practical exam and oral theoretical exam. The conspect covers all the neurology topics studied for 1 academic year. It includes 60 questions, 29 General Neurology and 31 Clinical Neurology. The practical exam includes assessment of student's skills to examine a patient and to present the neurological signs and syndromes. Only students that pass the practical exam are allowed to sit for the theoretical exam. Each ticket for the theoretical exam has 1 question from the General Neurology and 1 question from the Clinical Neurology. The final evaluation is based on the total student's activity during the educational course and the marks from the practical and theoretical exams.

SYSTEM OF COLLECTING CREDITS

Total Credits: 5,5 (165 credit points)

Total credit balance:

1. Credits from presence and activities from practical classes.
2. Credits from presence at lectures.
3. Credits from self-education for the practical classes.
4. Credits from test results.
5. Credits from the final exam.

Distribution of the 165 points to the credits of 5,5:

Activities	Maximum points	Maximum Credits	%
1. Practical classes: presence and activities.	30 x 2 = 60	2	36,3
2. Presence at lectures	20 x 1 = 20	0,7	12,7
3. Activity and marks from practical classes	30 x 0,5 = 15	0,5	9
4. Test results	5 x 3 = 15	0,5	9
5. Exam results.	55	1,8	33
Total:	165	5,5	100

POSITION AND SIGNIFICANCE OF NEUROLOGY IN THE EDUCATIONAL PROGRAM

OF MEDICINE

The discipline Neurology is included in the educational course of the VII-th and VIII-th semesters. Studying Neurology offers an excellent option for the medical students to upgrade knowledge on basic neurology, become familiar with common neurological disorders, to learn how to examine, diagnose and treat a patient with neurological complaints. The principles of teaching neurology for medical students are based on logic thinking, not on mechanical reading and collecting of knowledge.

EXPECTED RESULTS

At the end of the educational course in Neurology medical students should have basic knowledge on common neurological disorders and initial skills in management of patients with neurological diseases as an essential part of their future medical practice.

Conspect /Academic Year 2020/2021/

CONSPECTUS FOR THE SEMESTRIAL EXAMINATION IN NEUROLOGY

PART 1. GENERAL NEUROLOGY

1. Reflex activity. Exteroceptive and proprioceptive reflexes. Reflex abnormalities. Pathological reflexes - pyramidal tract signs. Spinal, brainstem and axial automatisms.
2. Anatomy and physiology of general sensation. Sensory examination. Pathophysiology of sensory disturbances.
3. Sensory syndromes with different sensory levels.
4. Anatomy and physiology of voluntary movement. Pyramidal system.
5. Syndromes of motor weakness. Syndromes of motor neuron (upper and lower) lesion.
6. Muscle tone and its regulation. Examination and abnormalities of muscle tone.
7. Coordination of voluntary movement. Anatomy, physiology, methods of examination, syndromes of discoordination.
8. Cerebellum. Anatomy, physiology, cerebellar syndromes.
9. Extrapyramidal motor system. Anatomy and physiology. Parkinsonian syndrome. Hyperkineses - choreoathetosis, ballism, dystonia, myoclonus, tremor, tics.
10. Syndromes of lesion of the cervical roots and the cervicobrachial plexus.
11. Syndromes of lesion of the lumbosacral roots and the lumbosacral plexus.
12. Syndromes of lesion of individual peripheral nerves - radial, median, ulnar, fibular, tibial. Syndrome of polyneuropathy.
13. Smell and taste: anatomy and physiology, olfactory and gustatory abnormalities.
14. Anatomy and physiology of vision. Visual pathways. Visual syndromes.
15. Oculomotor nerves (III, IV, VI). Anatomy and physiology of ocular motility and its disturbances.
16. Statoacoustic nerve. Anatomy and physiology of hearing and equilibrium. Syndromes of hearing loss and vestibular dysfunction.
17. The caudal group of cranial nerves (IX, X, XII), anatomy, physiology, syndromes of lesion. Bulbar and pseudobulbar palsy.
18. Syndrome of the internal capsule. Alternating brainstem syndromes.
19. Syndromes of lesion of the spinal cord.
20. Syndrome of meningeal irritation.
21. Autonomous nervous system. Pupillary reflexes, vasomotor and sudomotor reflexes, bladder reflexes. Syndromes of disturbance.
22. Anatomy and physiology of the diencephalon. Diencephalic syndromes.
23. Consciousness: definition, anatomy and physiology, alterations of consciousness. Brain death.

24. Cortical syndromes: frontal and parietal.
25. Cortical syndromes: temporal and occipital.
26. Gnosis and praxis: methods of examination and syndromes of disturbance.
27. Language: methods of investigation and syndromes of disturbance. Aphasias.
28. Cerebrospinal fluid: anatomy and physiology, methods of investigation, CSF syndromes.
29. Neuroimaging, electrodiagnosis in neurology.

PART 2. CLINICAL NEUROLOGY

30. Viral meningitides. ECHO, Coxackie.
31. Bacterial meningitis.
32. Tuberculous meningitis. Neurosyphilis: acute, meningovascular, tabes dorsalis.
33. Encephalitis lethargica. Subacute sclerosing panencephalitis. Chorea minor.
34. Rabies. Tick-borne encephalitis. Herpes simplex encephalitis. Postinfectious and postvaccination perivenous encephalitis and encephalomyelitis.
35. Poliomyelitis acuta anterior. Myelitides - acute transverse myelitis, acute disseminated myelitis.
36. Multiple sclerosis.
37. Intervertebral disc prolapse. Plexitis and plexopathies. Radiculitis and radiculopathies.
38. Bell's palsy.
39. Trigeminal neuralgia.
40. Polyneuritis and polyneuropathies. GBS.
41. Intracerebral haemorrhage: etiology, pathogenesis, clinical findings, diagnosis, differential diagnosis, treatment.
42. Subarachnoid haemorrhage: etiology, pathogenesis, clinical findings, diagnosis, differential diagnosis, treatment.
43. Ischemic stroke: etiology, pathogenesis, clinical findings, diagnosis, differential diagnosis, treatment. TIA.
44. Amyotrophic lateral sclerosis.
45. Parkinsonism: etiology, pathogenesis, clinical findings, diagnosis, differential diagnosis, treatment.
46. Spinocerebellar ataxias: Friedreich's and Pierre-Marrie's diseases.
47. Hepatocerebral dystrophy (Wilson's disease).
48. Muscular dystrophies. Hereditary motor and sensory neuropathy. Syringomyely.
49. Myasthenia.
50. Brain tumors: syndromes of increased intracranial pressure and generalized brain dysfunction.
51. Supratentorial brain tumors: frontal and parietal, temporal and occipital.
52. Infratentorial brain tumors: cerebellar and pontocerebellar angle tumors.
53. Brain abscess.
54. Tumors of the spine and spinal cord.
55. Traumatic brain injury: concussion, contusion, skull base fractures.
56. Traumatic intracranial hematoma - epidural and subdural. Delayed sequelae of traumatic brain injury: cerebraesthesia, encephalopathy, arachnoiditis.
57. Spinal cord trauma.
58. Epilepsy: etiology, pathogenesis, clinical findings, diagnosis, differential diagnosis, treatment. Status epilepticus.
59. Dementia.
60. Migraine and other primary headaches. Neuroses.

**Head of the Department:
Assoc.Prof. Maya Danovska, MD, PhD**

Recommended Literature:

1. General Neurology edited by Marina Popova, MD, Ph.D. Higher Institute of Medicine, Pleven, 2002.
2. Ropper AH, Samuels MA. Adams & Victor's Principles of Neurology, 9th Edition The McGraw-Hill Companies, 2009.
3. Ropper AH, Brown RH. Adams And Victor's Principles of Neurology, Eighth Edition, Mcgraw-Hill, 2005.
4. Diagnostic criteria in Neurology edited by Alan J. Lerner, MD, Humana Press Inc. Totowa New Jersey, 2006.
5. Fuller G. Neurological Examination Made Easy 2nd edition. Churchill Livingstone, 1999.
6. Aminoff MJ, Greenberg D, Simon R. Clinical Neurology. Lange, 2005.
7. Bradley WG, Daroff RB, Fenichel GM, Jankovic J. Neurology in Clinical Practice. Principles of Diagnosis and Management Fourth Edition, Butterworth Heinemann, 2004.
8. Neurological Emergencies, RAC Hughes, ed., Fourth Edition, BMJ Publishing Group, 2003.
9. Bhidayasiri R, Geffen D, Waters MF, Giza CC. Neurological Differential Diagnosis. A Prioritized Approach. Blackwell Publishing Ltd, 2005.
10. Masur H., Papke K., Althoff S., Oberwittler C., Floer H., Heil U., Heyen P., Hundenborn C., Nedjat S., Papke H., Speight L. Strater R., Vollmer-Haase J. Scales and Scores in Neurology. Quantification of Neurological Deficits in Research and Practice. Georg Thieme Verlag, 2004.

Author of the educational program of Neurology

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