



PA 7.5.1 SYLLABUS

ED: 02

DATE: 20.12.2013

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Approved

At the meeting of the Faculty Council Medicine
No.2

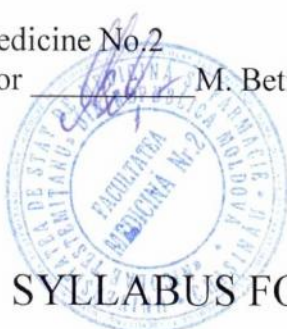
Minutes No. 3 of 25.02.2014

Dean of the Faculty Medicine No.2
PhD, associate professor M. Betiu

Approved

At the meeting of the chair Neurology
Minutes No. 7 of 31.01.2014

Head of the chair,
PhD, professor M. Gavriliuc



SYLLABUS FOR STUDENTS OF THE FACULTY MEDICINE No.2

Name of the course: **Neurology**

Code of the course: **C.01.O.002, C.02.O.002**

Type of course: **compulsory**

Total number of hours – 105

lectures --- 30 hours, practical lessons ---- 75 hours

Number of credits provided for the course: 5

Lecturers teaching the course: **dr., professor Mihail Gavriliuc**
dr., professor Vitalie Lisnic

Chisinau 2014



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I. Aim of the discipline

Studying the physiological and pathological changes in the nervous system depending on the relationship between neural substrate and causal factor, relevant multilateral examination of the relationship between the structure and internal organization of the nervous system, the interrelation of clinical syndromes and topical diagnosis.

II. Objectives obtained in teaching the discipline

- At the level of knowledge and understanding
 - To define the theoretical bases of contemporary neuroscience;
 - To identify the anatomical and functional peculiarities of the nervous system;
 - To highlight the topographic location and role of different structures, formations and areas of the nervous system in performing specific functions and neurological syndromes as a whole;
 - To establish the topical diagnosis of nervous system lesions based on defined clinical syndromes;
 - To report about etiopathogenesis, clinical manifestations, diagnosis, treatment and prevention of common nervous system diseases.

- At the level of application
 - To perform collection of anamnesis and evaluation history data of the nervous system functions;
 - To perform specific neurological examination on the systems;
 - To apply diagnostic methods in neurological diseases;
 - To analyze tests and clinical results, additional diagnostic investigations to assess the functional status of the nervous system;
 - To apply the methods of examination on patients with neurological emergencies.

- At the level of integration
 - To appreciate the importance of neuroscience in the context of Medicine and related medical disciplines integration;
 - To assess the evolution of physiological processes and the etiology of pathological processes of the nervous system;
 - To supervise pathological processes and to use investigation, treatment and prevention methods of the nervous system diseases;
 - To assess the diagnostic methods results in neurological diseases;
 - To take optimal decisions in emergency aid in critical situations;
 - Develop research projects in the field of neuroscience.



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III. Provisional terms and conditions

Clinical neurology is a medical discipline, which at university studying allowsto createthe necessary skills to support a diagnosis based on history, clinical and laboratory examination, to acquire the concepts and skills necessary to highlight neurological emergency cases and frequent neurological diseases, and to decide an appropriate curative management.

Fundamental knowledge obtained studying basic subjects such as anatomy, physiology, pathophysiology, biochemistry and others is needed to good acquire of the discipline.

IV. Main theme of the course

A. Lectures:

N	Subjects	Hours
1.	Subject of clinical neurology. History pages of Neurology. Sensitivity. Forms and types of sensation disturbances. Pain - a complex clinical phenomenon, neurological approach.	2
2.	Motility. Pyramidal system. Central and peripheral paralysis. Motor neuron disease.	2
3.	Extrapyramidal system. Akinetico-rigid hypotonic-hyperkinetic syndromes. Cerebellum. Ataxia syndrome.	2
4.	Brainstem. Cranial nerves. Symptoms and syndromes of impairment. Alternate, bulbar and pseudobulbar syndromes. Vertigo.	2
5.	Autonomic nervous system, suprasegmental and segmental structures, limbico-reticular system. Syndromes of impairment. Syncopes. Headache: classification, diagnostic criteria of primary headaches. Treatment.	2
6.	Introduction to clinical neuropsychology. The major syndromes: aphasia, apraxia, agnosia. The semiology of brain damage. Dementias.	2
7.	Neurologic examination on patients with an altered level of consciousness. Differential diagnosis: coma, vegetative state, akinetic mutism, locked-in syndrome. Brain death. Cerebrovascular diseases. Classification, risk factors and prevention.	2
8.	Ischemic and hemorrhagic stroke: clinical manifestations, diagnosis, the treatment in acute and recuperation period.	2
9.	Neuroinfection: meningitis, encephalitis, brain abscess and empyema. Neuroborreliosis.	2
10.	Multiple sclerosis and other demyelinating diseases of the nervous system. Neurosyphilis. Disturbances of the nervous system in AIDS. Neurological manifestations of somatic diseases.	2
11.	Intracranial hypertension syndrome. Brain and spinal cord tumors.	2



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	Paraneoplastic neurological syndromes. Traumatic injuries of the head.	
12.	Epilepsy. Cerebral palsy.	2
13.	Peripheral nervous system disorders. Etiology, classification, clinical manifestations, treatment. Complications of spinal osteochondrosis. Tunnel syndromes.	2
14.	Hereditary diseases in clinical neurology: myasthenia, progressive muscular dystrophies, myotonia. Hereditary ataxia. Neural amyotrophy. Wilson disease. Strumpellfamilial spastic paraplegia.	2
15.	Spinal cord disorders: myelitis, poliomyelitis, spinal ischemic stroke, chronic vascular myelopathy. Spinal cord injuries.	2

B. Practical lessons:

No.	Subjects	Hours
1.	Sensitivity and pain. The anatomical and physiological peculiarities of pathways mediating the superficial sensation. Forms and types of sensation disturbances. Neurological examination of sensitivity. Pain – an essential phenomenon of the human condition. Definition of pain. Pathogenesis of acute and chronic pain. Chronic pain - a disease of the nervous system. Brain changes in chronic pain. Therapeutic approaches.	5
2.	Pyramidal system. The anatomical and physiological peculiarities of pyramidal tract. The central and peripheral paresis and paralysis. Examination methods of the pyramidal system. Motor neuron disease.	5
3.	Extrapyramidal system and cerebellum. The anatomical and physiological peculiarities of extrapyramidal system. Hypotonic-hyperkinetic and hypertonic-hypokinetic syndromes. Types of hyperkinezis. Signs of lesions and methods of examination of the extrapyramidal system and cerebellum. Sydenham's chorea. Etiology, clinical manifestations and treatment. Huntington's chorea.	5
4.	Brainstem and cranial nerves. The anatomical and physiological peculiarities of brainstem and cranial nerves. Signs of affection of cranial nerves. Bulbar and pseudobulbar syndromes. Alternate syndromes of the brainstem. Methods of examination of cranial nerves. Vertigo: general concepts. Benign paroxysmal positional vertigo.	5
5.	Autonomic nervous system. The anatomical and physiological peculiarities of the suprasegmental and segmental autonomic system. Signs of impairment of ANS, methods of examination. Syncopes. Headache: classification, diagnostic criteria of primary headaches. Treatment.	5
6.	Introduction in clinical neuropsychology. The modern and classical clinical phenomenology. Alzheimer's dementia and vascular dementia. Diagnosis of dementia. Colloquium on semiology of the nervous system. Examination and medical history of neurological patient.	5
7.	Neurological emergencies. The neurologic examination on patients with an altered level of consciousness. Differential diagnosis: coma, vegetative state, akinetic mutism, locked-in syndrome. Brain death. Cerebrovascular disease. Classification, risk factors	5



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	and prevention.	
8.	Ischemic and hemorrhagic stroke: clinical manifestations, diagnosis. Importance of complementary diagnostic methods in the diagnosis of stroke: CT, MRI, angio-CT, angio-MRI, conventional angiography, carotid ultrasonography. The stroke treatment in acute and recuperation period.	5
9.	Neuroinfection: meningitis and encephalitis (classification, clinical manifestations, diagnosis and treatment). CSF examination. Cerebral abscess and empyema. Neuroborreliosis.	5
10.	Multiple sclerosis and other demyelinating diseases of the nervous system. Neurosyphilis. Disturbances of the nervous system in AIDS. Neurological manifestations of somatic diseases.	5
11.	Intracranial hypertension syndrome. Tumors of the nervous system. Traumatic injuries of the head: concussion, contusion, brain compression. Paraneoplastic syndromes. Idiopathic intracranial hypertension. Diagnosis criteria and treatment.	5
12.	Epilepsy and seizures syndromes: clinical manifestations, diagnosis and principles of treatment. Perinatal pathology of the nervous system. Cerebral palsy.	5
13.	Peripheral nervous system diseases: neuralgia, neuritis, polyneuritis, plexopathy, ganglionitis, radiculopathy. Etiology, clinical manifestations, differential diagnosis and treatment.	5
14.	Hereditary diseases in clinical neurology: myasthenia, progressive muscular dystrophies, myotonia. Hereditary ataxia. Neural amyotrophy. Wilson disease. Strumpellfamilial spastic paraplegia.	5
15.	Spinal cord disorders: myelitis, poliomyelitis, spinal ischemic stroke, chronic vascular myelopathy. Tumors of spinal cord. Spinal cord injuries: concussion, contusion, spinal cord compression. Totalizing practical lesson. Practical skills exam.	5

V. Recommended literature:

- A. compulsory:

1. **Harrison's Neurology in Clinical Medicine.** Editor: Stephen L. Hauser; Associate Editor: Scott Andrew Josephson. 2010, 765 p.
2. **Neurological examination. Made Easy.** Editor: Geraint Fuller. 1999, 219 p.

- B. additional:

1. Gilroy, John. **Basic neurology** / J. Gilroy. - 3rd ed. - New York : McGraw-Hill, 2000. - 702 p.
2. Pryse-Phillips, William. **Essential neurology** / W. Pryse-Phillips, T. J. Murray. - 2nd ed. - Garden City : Medical Examination, 1982. - ix, 714 p. : il. - (A consise textbook).



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3. Rodnitzky, Robert L. **Van Allen's pictorial manual of neurologic tests : a guide to the performance and interpretation of the neurologic examination**/R. L. Rodnitzky. - 3rd ed. - Chicago [s.n] , 1988. - 247 p. :il. - Bibliogr. : p. 231.
4. Victor, Maurice. **Adams and Victor's principles of neurology** / M. Victor, A. H. Ropper. - 7th ed. - New York : McGraw-Hill, 2001. - xi, 1694 p. il.
5. Martyn, Lois J. **Optic fundus signs of developmental and neurological disorders in children : a manual for clinicians** / L. J. Martyn, A. J. Pileggi, H. W. Baird. - Oxford : SIMP, 1985. - 80 p. - Bibliogr. : p. 73-80.
6. **Netter's neurology** / ed. : H. Royden Jones, Jr. - Teterboro : Icon Learning Systems, 2005. - xxviii, 980 p. : il.

VI. Teaching and learning methods

The discipline of Neurology is taught in traditional manner: with lectures and practical work. The lecturers will read the theoretical materials during the course. Course topics of the lectures will include key elements of semiological orientation based on symptoms and signs, presentation of some methodologies and techniques for examining the neurological patient. There will also be reflected the most important and current issues of neurology regarding the etiology, classification, pathogenetic mechanisms, clinical features, diagnosis, including differential diagnosis, treatment and prevention of neurological diseases.

These issues will be discuss during the practical lessons and students' knowledge gained in the lectures, as well as by studying textbooks, methodological recommendations and recommended additional literature will be test. Great importance will be given to the patients' clinical examination and the learning of the methodology of the neurological examination of the patient. In the discussion of the analyzed patients there will be evaluated additional investigations data (radiographies, CT and MRI imaging, CSF examination etc). Special attention will be given to students working independently with patients.

VII. Suggestions for individual activity

The self-training and self-education of students is done in different ways depending on the objectives or the proposed tasks, but also on the level of training and education in the respective domain.



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An important method of self-training is reading. Reading is a research, an investigation that also assimilates the content of a book, a paper. Understanding the proposed syllabus is based on the correct decoding of the message by perception, analysis, synthesis, generalization and application of the studied material. Reading also involves individual expression, which signifies a difficult personal effort using the maximum tension forces. To achieve the proposed objectives, individual study needs certain conditions: traditional means - pencil and paper, advanced techniques (Internet, etc) and lecture notes. Therefore we recommend effective study techniques:

1. Read original material, but don't simply scheme the text on the diagonal. Make notes. Try to formulate by yourself the important moments. Study the diagrams and pictures from the book and the notebook.
2. Come to courses and practical lessons, but not to make attendance! If you do otherwise, you will unlikely meet the requirements. Make notes carefully. Process the information and ask yourself: Do you agree with the teacher? Do you understand what it is speaking about? Does the taught material corresponds with that from the textbook?
3. Ask questions! Teacher, each other, yourselves. In the hall, in the classroom, in the hallways, teachers' offices. Asking questions means that you try to understand and process the material taught and that can only be welcomed.
4. Get organized in groups of 2-3 students to meet regularly for discussions on course material and prepare for tests. Usually in small working groups a much broader and clearer understanding is synthesized than working individually. In addition, the ability to explain the learnt material to colleagues will be a very useful skill for the future.
5. Use time reasonably. The discipline of neurology forwards high requirements, as well as all the fundamental or clinical disciplines taught. Therefore, you will have to manage your time rationally and find the perfect balance between the effort you put in to obtain knowledge, other responsibilities and personal life. According to current requirements, for each hour of work in direct contact with the teacher, the student must work individually 1-2 hours. In other words, for sufficient assimilation of the subject you should work individually at least 5 hours per week.



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VIII. Methods of assessment

During the school year, for the discipline of neurology, there are 15 control works using tests developed in the course topics and 2 Aggregation (formative assessment): Semiology of the nervous system and nervous system diseases.

Thus, formative assessment consists of 15 total tests. Each test is marked independently with marks from 10 to 0. Each test can be taken 2 times. Annual average is formed from the sum of points accumulated during the study year and divided by 15.

Formative assessment tests are based on the textbook "Self evaluation and self control to Neurology and Neurosurgery" developed by the Neurology Department. The tests include questions with a single correct answer and questions with 2-4 correct responses (multiple choice), seeking to prepare for passing the exam at the discipline of neurology. The student is provided with a total of 30 minutes to answer the test. The evaluation is performed according to the criteria of consistency system (option "Test Editor" SMFU "NicolaeTestemitanu").

Students whose annual average is below grade 5, as well as the students who have not recovered the practical work absences, shall not be allowed to the promotion exam at the discipline of Neurology.

The exam at the discipline of Neurology (summative evaluation) consists of three tasks: simple and multiple-choice test (option "Test Editor" Medical University "NicolaeTestemitanu"), verbal task and practical skills.

The test task consists of 100 tests options from all topics of Neurology, 40 tests are simple choice, 60 multiple choice tests. The student is provided with a total of 2:00 astronomical hours to answer the tests. The task is marked with grades from 10 to 0.

The verbal task consists of three questions on topics of the studied discipline. The task is marked with grades from 10 to 0.

The "Practical skills" task is taken at the end of the module in the semester of studying. The task is marked with grades from 10 to 0.

Topics for exams (tests and questions) are approved at the department meeting and are presented to the students at least one month before the session.

For the test to be considered passed, the student must achieve at least grade 5 at each task, otherwise the exam is not passed.

The final grade consists of 4 components: annual average mark (coefficient 0.3), practical dexterity (coefficient 0.2), oral test (coefficient 0.3), written test (coefficient 0.2).



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Methods of mark rounding

The average of current and final marks	Final mark
5	5
5,1-5,5	5,5
5,6-6,0	6
6,1-6,5	6,5
6,6-7,0	7
7,1-7,5	7,5
7,6-8,0	8
8,1-8,5	8,5
8,6-9,0	9
9,1-9,5	9,5
9,6-10	10

Absence on examination without good reason shall be recorded as "absent" and is equivalent to 0 (zero). The student has the right to re-take the exam twice.

IX. Language of study

Romanian, Russian, English, French