

Federal state budget institution of higher education

People's Friendship University of Russia

Institute of Medicine

Recommended by ISSC

PROGRAM

Name of discipline: «Neurology»

31.05.03 Dentistry

Qualification (degree) of graduate

Dentistry

1. Aims and objectives of the subject:

Aims: To determine the knowledge of stomatology students about basics of semiotics, topical diagnosis, nosology, additional methods of investigation, differential diagnosis and neurological treatment.

Objectives:

The main objectives for stomatology students, while studying neurology are:

- Knowledge about basic examination methods in neurological patients (medical history, neurological examination of the patient and additional methods of investigation - blood test, urinalysis, ECG, Doppler ultrasound, EEG, CT, EMG, MRI).
- Ability to provide specialized emergency neurological care in acute neurological diseases: stroke, epilepsy, syncope.
- Ability to perform differential diagnosis between neurological diseases.
- Knowing the major drug groups used in neurology. Their indications and complications.
- Treatment strategies for main types of neurological diseases.

2. Place of the subject in BEP structure:

Neurology is an independent practical, clinical subject, which requires knowledge of basic theoretical subjects like (anatomy, pathological anatomy, physiology, pathological physiology and pharmacology), as well as of the faculty subjects like (internal medicine and therapy). The knowledge gained while studying neurological diseases, medical genetics and neurosurgery by stomatology students is needed in the study of clinical subjects like (infectious diseases, hospital therapy, maxillofacial surgery, traumatology and oncology).

Discipline is studied during 8th semesters. Table 1 presents the following and subsequent disciplines aimed at the formation of discipline competencies in accordance with the competence matrix.

Table 1

Prior and subsequent disciplines aimed at the formation of competencies

N	Universal Competence Code and Name	Prior disciplines	Subsequent disciplines
general professional competences (GPC)			
1	GPC-5. Being able to examine patients to determine a diagnosis when solving professional tasks	Faculty therapy	
2	GPC-6. Being able to prescribe non-drug and drug treatment, monitor its efficacy and safety when solving professional tasks	Faculty therapy	

3. Requirements for the results of mastering the discipline

The process of studying the discipline is aimed at the formation of the following competencies:

Table 2

Formed competencies

Competence	Competence Name	Competence Achievement Indicator
GPC-5.	Being able to examine patients to determine a diagnosis when solving professional tasks	GPC-5.1. Gathering anamnesis by analysing the patient's complaints,

		<p>making a physical examination at a dental appointment.</p> <p>GPC-5.2. Formulating a preliminary diagnosis and drawing up a plan for laboratory and instrumental examinations of a dental patient.</p> <p>GPC-5.5. Referring a patient to an instrumental examination in case there are medical indications in accordance with the current procedures for the provision of medical care, clinical guidelines (treatment protocols) on the provision of dental care taking into account the standards</p> <p>GPC-5.8. Conducting differential diagnosis with other diseases/conditions, including the urgent ones.</p>
GPC-6	Being able to prescribe non-drug and drug treatment, monitor its efficacy and safety when solving professional tasks	<p>GPC-6.1. Developing a plan for dental disease treatment taking into account the diagnosis, age and clinical picture in accordance with the current procedures for the provision of medical care, clinical guidelines (treatment protocols) on the provision of medical care taking into account the medical care standards.</p> <p>GPC-6.4. Providing medical care to a dental patient in emergency or urgent forms.</p> <p>GPC-6.8. Prescribing non-drug treatment taking into account the diagnosis, age and disease pattern in accordance with the current procedures for the provision of medical care, clinical guidelines (treatment protocols) on the provision of medical care taking into account the medical care standards.</p>

Know:

1. Basic clinical investigation methods for neurological patients
2. Main symptoms and syndromes in neurological diseases
3. Etiology, pathogenesis, clinical manifestations and diagnosis of major neurological diseases.
4. Medical tactics in case of emergency neurological conditions.
5. Interpret the laboratory findings (know the normal and pathological values).
6. Basics of medical ethics and deontology.
7. Understanding the concept of various neurosurgical treatments in prosopalgia.
8. Understanding the concepts about basic neurological diseases of face and mouth (facial expression, tremor, hyperkinesis, autonomic changes, changes in the secondary dentition).

9. Have an idea about the features of stomatological care in chronic diseases of the nervous system (the effects of stroke, epilepsy, trigeminal neuralgia, etc.).
10. The main groups of drugs used in neurology and their indications.

Be able to:

1. Questioning the patient and relatives, to identify complaints, collect amnanesis vitae and morbi.
2. Examining neurological status of the patient.
3. Interpret laboratory and diagnostic results (cerebrospinal fluid, radiography of the skull, spine, EEG, myography, CT, MRI, ultrasonography).
4. Independently examine the patient and establish clinical diagnosis, differential diagnosis, prescribe treatment and determine prognosis of the most common neurological diseases.
5. Interpretation of the collected patient anamnesis in the form of case history.
6. Solve stomatological cases related to the collected patient history, diagnostic symptoms and syndromes.
7. Independent educational, scientific and reference literature work.
8. Know how to use computers and the internet.

Know:

4. Subject and kinds of study

The total subject complexity has **3 credits**.

Academic work	Total hours	Semesters			
		6	7	8	
Classroom training (total)	68			68	
Including:		-	-		-
Lectures					
Practical classes (PC)					
Semianrs (S)					
Laboratory work (LW)	68			68	
Self study (total)	40			40	
Including:	-	-	-	-	-
Course project (work)					
Calculation and graphical work					
Abstract					
<i>Other types of self study</i>					
<i>Supervision of patients, dressing the wounds, work in endoscopic rooms and operation theaters.</i>					
Type of intermediate certification (test, exam)					
The total complexity	hours	108		108	
	credits	3		3	

5. Course Description

5.1. Sectional contents of the subject

№	Name of section	Section contents
1.	<p>Propaedeutic of neurology The general concept of the nervous system. Brain and spinal cord. Central and peripheral nervous system. Movement and its disorders. Central and peripheral paralysis. The main syndromes due to lesions at different levels of motor tracts. Extrapyramidal system and the cerebellum.</p>	<p>Learning objective: Be able to:</p> <ol style="list-style-type: none"> 1. Use methods for examining the active movements; muscle strength; muscle tone; tendon, cutaneous, mucosal and periosteal reflexes. 2. Use methods for examining the coordination of movements (Romberg's test, examining gait with open and closed eyes, finger-nose test, heel-shin test, diadochokinesis, Schilder's test, Asynergia Babinski.) <p>Know:</p> <ol style="list-style-type: none"> 1. Anatomy and physiology of the central and peripheral motor neurons. 2. Signs of central and peripheral paralysis. 3. Symptoms due to damage of motor analyzers at different levels: cortex; white matter of the cerebral hemispheres; internal capsule; brainstem; anterior horn, anterior roots and peripheral nerves of cervical, thoracic and lumbar spinal cord. 4. Jacksonian and Kojevnikov's epilepsy. 5. Main symptoms in brainstem lesions: alternating syndrome (Zaharchenko-Wallenberg, Weber), bulbar and pseudobulbar palsy. 6. Spinal cord lesions at different levels. Brown-Sequard syndrome. Lesion of cauda equina.
2.	<p>Sensory system. Types of sensitivity. Pain sensation. Trigeminal system as part of the general sensitivity. Clinical syndromes in lesions of sensory pathways at various levels. Examination techniques of superficial, deep and complex sensitivity.</p>	<p>Learning objective: Be able to:</p> <ol style="list-style-type: none"> 1. Examination of sensitivity and sensory organs, superficial and deep sensitivity. 2. Establish topical diagnosis in the most typical cases of sensory disturbances. 3. Examine the major meningeal signs (neck rigidity, Kernig, Brudzinski, zygomatic symptom of Bekhterev). 4. Examine the major signs of radiculitis (Neri's, Lasegue's, Matskevich's, Wasserman's) and the main trigger points. <p>Know:</p> <ol style="list-style-type: none"> 1. Basic anatomical and physiological information about the superficial and deep sensitivity tracts, visual, auditory, olfactory and gustatory analyzers. 2. Signs of sensory disorders: pain, parasthesia, hyperesthesia, hypoesthesia, anesthesia and dysesthesia. 3. Sensory disorder syndromes due to lesions at different levels of: the cortex, the internal capsule, the thalamus, brainstem, spinal cord, roots, plexus, peripheral nerves. 4. Main syndromes due to damage in visual, auditory, olfactory and gustatory analyzers.

3.	The concept of the cranial nerves. Examination techniques. Clinical syndromes due to the cranial nerve lesions.	<p>Learning objective:</p> <p>Be able to:</p> <ol style="list-style-type: none"> 1. Examination of motor, sensory and mixed cranial nerves. 2. Determine the level of lesion in cranial nerves. <p>Know:</p> <ol style="list-style-type: none"> 1. Structure and syndromes due to cranial nerve lesion. 2. Особенности клиники в зависимости от уровня поражения.
4.	Trigeminal system, stomalgia and glossalgia. Clinics, diagnosis and treatments.	<p>Learning objective:</p> <p>Be able to:</p> <ol style="list-style-type: none"> 1. Examination of V, IX pair of cranial nerves. 2. Determine the level of lesion in V, IX pair of cranial nerves. <p>Know:</p> <ol style="list-style-type: none"> 1. Structural features of peripheral and central the trigeminal nerve. 2. Types of facial sensory disorders. 3. Syndromes in trigeminal nerve lesion. 4. Etiology, pathology, diagnosis and treatment in trigeminal neurology, glossalgia, stomatalgia and dental plexalgia.
	The autonomic nervous system and its pathology. Basic manifestations in the autonomic nervous system disorders of face and head.	<p>Learning objective:</p> <p>Be able to:</p> <ol style="list-style-type: none"> 1. Examine the condition of autonomic nervous system: <ul style="list-style-type: none"> - dermatographism - Aschner's reflex - Orto-clinostatic test 2. Diagnosing the symptomal and syndromal autonomic nervous system lesions: Horner and Argyll-Robertson. 3. Diagnosing major diseases of the autonomic nervous system. <p>Know:</p> <ol style="list-style-type: none"> 1. Anatomy and physiology of the autonomic nervous system. <ul style="list-style-type: none"> Segmental and suprasegmental divisions: <ul style="list-style-type: none"> - Sympathetic nervous system: the lateral horn of the spinal cord, sympathetic trunk and ganglia - Parasympathetic nervous system: mesencephalic, bulbar, sacral divisions - Vagus nerve system 2. Role of the autonomic nervous system in the regulation of body functions in health and in pathology. 3. Basic symptoms in lesions of the limbic system and reticular formation. The lesion of hypothalamic region. Vegetative-vascular paroxysms. Neuroendocrine syndromes. Impairment of thermoregulation. Psycho-vegetative symptoms. 4. Lesion of brainstem, lateral horn of the spinal cord, ganglia, sympathetic trunk, nerves and visceral syndromes.
5.	Higher cortical functions.	<p>Learning objective:</p> <p>Be able to:</p>

		<ol style="list-style-type: none"> 1. Examination of gnosis (agnosia – olfactory, visual, gustatory, auditory, astereognosis and autotopagnosis), types of apraxia (constructive, ideational and motor), impaired speech (dysarthria, motor and sensory aphasia and congenital hypoplasia of speech), memory, thinking. 2. Ability to determine impairment and level of consciousness (sopor, stupor, coma, psychomotor agitation). <p>Know:</p> <ol style="list-style-type: none"> 1. Anatomy and physiology of the cerebral cortex. 2. Localization of functions in the cerebral cortex. 3. Methods of examination of higher cortical functions. 4. Syndromes in lesions of frontal, temporal, parietal and occipital lobes.
6.	Myofascial pain syndrome, dysfunction of the temporomandibular joint. Clinical features, diagnosis and treatment of vegetative prosopalgia.	<p>Learning objective:</p> <p>Be able to:</p> <ol style="list-style-type: none"> 1. Examine the function of masticatory muscles. 2. Finding the difference between pain dysfunction of the temporomandibular joint and myofascial pain prosopalgia. <p>Know:</p> <ol style="list-style-type: none"> 1. Anatomy and physiology of masticatory muscles. 2. Influence neurotic and depressive syndromes on the chewing function. 3. Clinical features of clinic myofascial prosopalgia - impairment in opening of mouth, "jump sign", etc.
7.	Acute cerebrovascular discirculation. Closed head injuries.	<p>Learning objective:</p> <p>Be able to:</p> <ol style="list-style-type: none"> 1. Acquaintance with X-ray, CT, MRI in the diagnosis of stroke and intracranial injury. 2. Able to examine the patient with stroke and traumatic brain injury. <p>Know:</p> <ol style="list-style-type: none"> 1. Anatomy and physiology of cerebral circulation. 2. Etiology and pathogenesis of acute cerebrovascular discirculation. 3. Clinics diagnosis and treatment of acute cerebrovascular discirculation. 4. Classification, clinics, diagnosis and treatment of brain trauma. 5. The combination maxillofacial system and closed head injury.
8.	Inflammatory diseases of the central nervous system and peripheral nervous system. Meningitis, encephalitis, polyneuropathy, AIDS and neurosyphilis. Multiple sclerosis.	<p>Learning objective:</p> <p>Be able to:</p> <ol style="list-style-type: none"> 1. Collect anamnesis, clinical and paraclinical examination of the patient. 2. Put up correct diagnosis. <p>Know:</p> <ol style="list-style-type: none"> 1. What methods of examination are necessary for these diseases 2. Treatment and prevention of these diseases.

		3. Pathogenesis, clinical manifestations, diagnosis, and options for modern methods of treatment. 4. Symptomatic trigeminal neuralgia and glossopharyngeal neuralgia in multiple sclerosis.
9.	Syringomyelia, syringobulbia. Brain tumor. Epilepsy.	Learning objective: Be able to: 1. Collect anamnesis, clinical and paraclinical examination of the patient. 2. Put up correct diagnosis. Know: 1. Etiology, pathogenesis, clinical manifestations, diagnosis and treatment of these diseases. 2. Features of prosopalgia in brain tumors. 3. Tactics of stomatologist in syringobulbia.

5.2 Categories in the subject and other subjects linked (subsequently) in the subject

		1	2	3	4	5	6	7	8	9
1.	Infectious diseases									+
2.	Cranio-facial surgery			+	+		+	+		
3.	Oncology									+
4.	Traumatology			+	+		+		+	

5.3. Sections in the subject and types of lessons

№	Name of sections	Lec.	Prac. Sess.	Lab. work	Seminar	SS	Total hrs.
1.	Propaedeutic of neurology The general concept of the nervous system. Brain and spinal cord. Central and peripheral nervous system. Movement and its disorders. Central and peripheral paralysis. The main syndromes due to lesions at different levels of motor tracts. Extrapyramidal system and the cerebellum.			6,8		4	10,8
2.	Sensory system. Types of sensitivity. Pain sensation. Trigeminal system as part of the general sensitivity. Clinical syndromes in lesions of sensory pathways at various levels. Examination techniques of superficial, deep and complex sensitivity.			6,8		4	10,8

3.	The concept of the cranial nerves. Examination techniques. Clinical syndromes due to the cranial nerve lesions.			6,8		4	10,8
4.	Trigeminal system, stomalgia and glossalgia. Clinics, diagnosis and treatments.			6,8		4	10,8
5.	The autonomic nervous system and its pathology. Basic manifestations in the autonomic nervous system disorders of face and head.			6,8		4	10,8
6.	Higher cortical functions.			6,8		4	10,8
7.	Myofascial pain syndrome, dysfunction of the temporomandibular joint. Clinical features, diagnosis and treatment of vegetative prosopalgia.			6,8		4	10,8
8.	Acute cerebrovascular dyscirculation. Closed head injuries.			6,8		4	10,8
9.	Inflammatory diseases of the central nervous system and peripheral nervous system. Meningitis, encephalitis, polyneuropathy, AIDS and neurosyphilis. Multiple sclerosis.			6,8		4	10,8
	Total			68		40	108

6. Laboratory work

7. Practical sessions (seminars)

№	Topic for practical sessions (seminars)	The complexity (hrs.)
1.	Propaedeutic of neurology The general concept of the nervous system. Brain and spinal cord. Central and peripheral nervous system. Movement and its disorders. Central and peripheral paralysis. The main syndromes due to lesions at different levels of motor tracts. Extrapyramidal system and the cerebellum.	6,8
2.	Sensory system. Types of sensitivity. Pain sensation. Trigeminal system as part of the general sensitivity. Clinical syndromes in lesions of sensory pathways at various levels. Examination techniques of superficial, deep and complex sensitivity.	6,8
3.	The concept of the cranial nerves. Examination techniques. Clinical syndromes due to the cranial nerve lesions.	6,8
4.	Trigeminal system, stomalgia and glossalgia. Clinics, diagnosis and treatments. The autonomic nervous system and its pathology. Basic manifestations in the autonomic nervous system disorders of face and head.	6,8
5.	Higher cortical functions.	6,8

6.	Myofascial pain syndrome, dysfunction of the temporomandibular joint. Clinical features, diagnosis and treatment of vegetative prosopalgia.	6,8
7.	Acute cerebrovascular dyscirculation. Closed head injuries.	6,8
8.	Inflammatory diseases of the central nervous system and peripheral nervous system. Meningitis, encephalitis, polyneuropathy, AIDS and neurosyphilis. Multiple sclerosis.	6,8
9.	Syringomyelia, syringobulbia. Brain tumor. Epilepsy.	6,8

1. Fundamental assessment tools for the subject

8. Approximate topics for course projects (works)

9. Educational-methodical and informational support used in the subject:

a) Basic references

1. Neuroanatomy through clinical case by Hal.Blumenfeld, 2011.
2. Handbook of neurology edited by U.S. MARTINOV, MOSCOW 2000, 2013.
3. Guide to neurological history taking and examination. Garabova N.I., Burzhunova M.G., Strutsenko A.A., Nozdryukhina N.V. 2017
4. Glossary on neurology N.U. Nozdrukhhina, A.A. Strutsenko, N.I. Garabova, Burzhunova M.G.
5. Harrison's Principles of Internal Medicine. Neurology chapters.
6. Oxford Handbook of Neurology by Manji, H., [et al]. 2014.

b) Further Reading

1. Textbook for dental students of medical faculties. Stepanchenko A.V., Puzin M.N., Tsunikov A.I., Trubina L.G., Nesterenko G.M. Neurological diseases: – Moscow., 2017.
2. Topical diagnosis in diseases of nervous system. Triumphov A.V. – SPb., 2014.
3. Bradleys neurology in clinical practice by Daroff, R. B., [et al]. 2016.
4. Typical trigeminal neuralgia Stepanchenko A.V., Moscow, 2014.

c) Software

d) Database, information & references and search engines — on RUDN portal.

1. Material and technical support used in the subject:

Practical work of students is conducted in the neurological wards of CCH (City Clinical Hospital) № 64. Lectures and practical classes are held in classrooms with multimedia installation, laptops and e-library.

Guidelines for the organization of subject study:

- Unit 1. Propaedeutic of neurology
- Unit 2. Neurological diseases

10.Methodical instructions for students on mastering the discipline

Students are required to attend classes, complete assignments within the framework of classroom and independent work using recommended textbooks and teaching aids, electronic educational resources, databases, information and reference and electronic search systems. During certification, the quality of students' work in the classroom, the completeness and quality of the assignment for independent work, the ability to solve professional and communicative tasks in the field of interpersonal communication are assessed.

Educational materials in electronic form on a number of topics studied are posted on the department's website, in the personal accounts of employees on the RUDN University Training Portal, in TUIS, on the local resources of the RUDN University electronic library system. Presentations

on the topics of classes can be recorded on CDs or flash cards for independent work of students on a home computer.

11. Fund of assessment tools for intermediate certification of students in the discipline "Neurology"

Materials for assessing the level of development of educational materials for the discipline "Neurology" (assessment materials), including a list of competencies with an indication of the stages of their formation, description of indicators and criteria for assessing competencies at different stages of their formation, description of assessment scales, typical control tasks or other materials necessary to assess knowledge, skills, abilities and (or) experience of activity, characterizing the stages of the implementation of competencies in the process of mastering the educational program, methodological materials that determine the procedures for assessing knowledge, skills, skills and (or) experience, characterizing the stages of the formation of competencies, are developed in full and are available for students on the discipline page in the TUIS RUDN.

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