

**DESCRIPTION OF COURSE UNIT FOR DOCTORAL STUDIES
AT VILNIUS UNIVERSITY**

Scientific Area/eas, Field/ds of Science	Medical and Health Sciences (M 000): Medicine (M 001)			
Faculty, Institute, Department/Clinic	Faculty of Medicine Institute of Clinical Medicine Clinic for Neurology and Neurosurgery			
Course unit title (ECTS credits, hours)	Epilepsy and Other Seizure Disorders 7 credits (189 Hours)			
Study method	Lectures	Seminars	Consultations	Self-study
Number of ECTS credits	-	-	1	6
Method of the assessment (in 10 point system)	Oral exam. The doctoral student is asked four questions - one from each - the clinic, examination, differential diagnosis, treatment and practical task - to assess a specific clinical situation.			
PURPOSE OF THE COURSE UNIT				
To provide the doctoral student with theoretical knowledge about the modern concept of epilepsy, diagnosis of the conditions and diseases causing it and the principles of treatment; to review the latest clinical research and treatment perspectives; to provide practical skills for examining a patient.				
THE MAIN TOPICS OF COURSE UNIT				
<p>Introduction to consciousness and its impairment. Understanding of consciousness, problems of its impairment and assessment methods. Relationship with clinical neurology, neuroanatomy, neurophysiology, neurochemistry. Epilepsy and symptomatic seizures. Neurotransmitters and neurochemical processes.</p> <p>Cognitive functions, classification, types, structure, and terminology. The concept of cognitive function. Localized and distributive cognitive functions. Attention, orientation, memory, language, perception, calculation, praxis, higher cognitive functions such as emotions, impulse control, problem solving, and social interaction.</p> <p>Brain anatomy and neurophysiology. Anatomy of brain structures and connectivity. Neurotransmitters of cognitive processes. Neurophysiological mechanisms of cognitive processes.</p> <p>Semiology of epileptic seizures. Types of epileptic seizures. Assessment of consciousness and perception. Differential diagnosis of epileptic seizures. Types of memory. Types of aphasias and their differentiation methods. Aprozody. Acalculia. Dyslexia. Classification of apraxia, peculiarities, clinical significance. Agnosis. Symptoms of frontal functions, disexecutive syndrome.</p> <p>Electrophysiological tests. Electroencephalography.</p> <p>Laboratory and neurovisual examinations in epilepsy. Laboratory and neuroradiology studies in diagnosis of epilepsy. Requirements for laboratory and neurovisual examination in Lithuania. Neurovisual methods used in the diagnosis of epilepsy: CT, MRI, SPECT, PET, fMRT. Methodology, indications, scientific and clinical significance.</p> <p>Pharmacology of antiseizure medications.</p>				

The main groups of drugs. Mechanisms of action. Indications for use and dosage. Adverse reactions. Peculiarities of long-term drug treatment.

Non-pharmacological treatment of epilepsy.

Surgical treatment of epilepsy: screening, pre-surgical examination, methods. Vagal nerve stimulation: patient selection, indications, performance technique. Deep brain stimulation: indications, performance technique. Treatment with a ketogenic diet.

Disorders of consciousness.

The concept of consciousness, definitions, cognitive and neurobiological theories. The main syndromes of impaired consciousness. The role of consciousness in cognitive processes. Influence of the state of consciousness in the assessment of cognitive disorders.

Epilepsy.

Epidemiology, etiology, genetics, pathogenesis, pathomorphology, neurochemistry, clinical picture, diagnostics, differential diagnosis, international diagnostic criteria, paraclinical evaluation, treatment, prevention, and prognosis.

Syncope.

Epidemiology, etiology, genetics, pathogenesis, pathomorphology, neurochemistry, clinical picture, diagnostics, differential diagnosis, international diagnostic criteria, paraclinical evaluation, treatment, prevention, and prognosis.

Non - epileptic psychogenic seizures.

Epidemiology, etiology, genetics, pathogenesis, pathomorphology, neurochemistry, clinical picture, diagnostics, paraclinical evaluation, treatment, prevention, and prognosis.

Rare and complex epilepsies.

Epidemiology, etiology, genetics, pathogenesis, pathomorphology, diagnosis, differential diagnosis, international diagnostic criteria, paraclinical research, treatment, prevention, and prognosis.

Practical skills:

Skills in the assessment of seizures using clinical, neurological, physiological and radiological methods. Ability to interpret (in some cases - evaluate) the results of electrophysiological, laboratory, neuropsychological, and neurovisual assessment. Skills in the diagnosis and differential diagnosis of seizure disorders. Skills in developing an optimal paraclinical evaluation for a patient with seizure disorder. Selection, dosage, combination of drugs for the treatment of epilepsy. Ability to recognize possible adverse reactions, their correction. Long-term treatment of epilepsy, rehabilitation (including cognitive) and prevention measures.

RECOMMENDED LITERATURE SOURCES

1. Klinikinė neurologija. Red. V.Budrys. 2-as leid. Vilnius, Vaistų žinios, 2009.
2. Wyllie's treatment of epilepsy. E.Wyllie, 7th ed. Wolters Kluwer, 2020.
3. MRI in Epilepsy (Medical Radiology) Horst Urbach Ed. 2013th ed. Springer, 2015
4. Epileptic Syndromes in Infancy, Childhood and Adolescence. Michelle Bureau, Ed. 6th ed. John Libbey Eurotext, 2019.
5. Epilepsy. R.A.Gross, J.W.Mink. Eds. J.W.Miller and H.P.Goodkin. Wiley Blackwell, 2014.
6. Schomer DL, Lopes da Silva FH. Niedermeyer's electroencephalography: basic principles, clinical applications, and related fields. 7th edition. Oxford University Press, 2018.
7. The role of EEG in the diagnosis and classification of the epilepsies and the epilepsy syndromes: A tool for clinical practice. Michalis Koutroumanidis. 2nd ed. John Libbey Eurotext, 2021
8. Neurology: A Queen Square Textbook 2nd ed. Charles Clarke Ed, 2nd ed. Wiley-Blackwell, 2016.

9. Atlas of electroencephalography: The epilepsies. EEG and epileptic syndromes. Philippe Gelisse 2nd ed. John Libbey Eurotext, 2019.

CONSULTING LECTURERS

1. Coordinating lecturer: Rūta Mameniškienė (Prof. Dr.).

2. Dalius Jatužis (Prof. Dr.).

3. Arminas Jasionis (Assist. Prof. Dr.).

APPROVED:

By Council of Doctoral School of Medicine and Health Sciences at Vilnius University:
29th of September 2022

Chairperson of the Board: Prof. Janina Tutkuvienė