



Course title: NEUROSURGERY

ECTS credit allocation (and other scores):4

Semester: autumn

Level of study: ISCED-7 - second-cycle programmes (EQF-7)

Branch of science: Medical and health sciences

Language: English

Number of hours per semester: 45

Course coordinator/ Department and e-mail: wojciech.maksymowicz@uwm.edu.pl

Type of classes: classes and lectures

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#### Substantive content

CLASSES: CLASSES 1. Management in situations of direct threat to life or damage to the CNS and peripheral nervous system due to the accumulation of the above-mentioned disease processes. 2. Basics of neuroradiological diagnostics 3. Subject and physical and neurological examination of neurosurgical patients 4. Diagnosis and treatment of head injuries 5. Diagnosis and treatment of spine injuries 6. Pathophysiology, symptomatology and management of increasing intracranial pressure 7. Diagnosis of subarachnoid hemorrhage (SAH) and further pre-hospital and emergency room management after SAH 8. Diagnosis and surgical treatment of patients with SAH 9. Diagnosis and treatment of patients with intracranial tumour 10. Diagnosis and treatment of lumbar discopathy 11. Diagnosis and treatment of cervical discopathy 12. Neurosurgical treatment of pain 13.

Specificity of neurosurgical procedures - passive participation in selected neurosurgical procedures

SEMINAR 1. Post-traumatic injuries of the Central Nervous System - damage mechanisms (contre coup), physical phenomena accompanying the injury (cavitation phenomenon, angular and linear accelerations, gravity and centrifugal force). Acute cerebral contusion to the formation of intracerebral hematoma. Acute and chronic extradural and subdural hematomas. Hemorrhages of the posterior cranial fossa. Skull-base fractures - nasal and auricular fluid, intracranial air. Transverse and longitudinal fractures of the temporal bone pyramid. Late consequences of injuries - Cerebrasthenia syndrome and Korsakov syndrome, late epilepsy. A reminder of the pathophysiological mechanisms of brain autoregulation. 2. Traumatic injuries of the spine and peripheral nerves, including discopathy, fractures of the spine. Brachial plexus injury. 3. Subarachnoid haemorrhage, intracranial aneurysms and CNS vascular malformations, symptoms, procedures, including surgical treatment of the above mentioned malformation by endovascular or surgical exclusion of the aneurysm from cerebral circulation.

Differential diagnosis. 4. Functional neurosurgery. The concept of what it does and the treatment of: a) drugresistant epilepsy b) extrapyramidal system disorders c) spasticity d) pain syndromes e) neuralgia f) torticollis. 5.

CNS infections, including intracranial abscesses. Symptoms, methods of diagnosis, radiological diagnostics, elements of conservative and surgical therapy. Pathophysiological, microbiological and pathomorphological basis of development of CNS infection.

LECTURES: 1. Scope of knowledge and skills, which is engaged in neurosurgery. What kind of patients a family doctors refer to a neurosurgeon? To which patients emergency medicine immediately calls neurosurgeon? What should I look for during examining a patient who may need the assistance of neurosurgery? Basics of pathophysiology of intracranial increasing pressure . 2. Life threatening in neurosurgery. Cranio-cerebral and spinal trauma. 3. Life threatening in neurosurgery. Stroke and subarachnoid hemorrhage . 4. neurooncology. 5. Functional Neurosurgery.

Learning purpose: Acquisition of knowledge in the field of pathophysiology, diagnostics and principles of treatment of disease processes (spontaneous and traumatic), causing intracranial cramping, intracranial bleeding, cramping in the spinal canal and damage to the central nervous system as a result of hyperplasia or hematoma, or external pressure. Acquiring knowledge about the proper management in the event of a direct threat to life or damage to



the CNS and peripheral nervous system due to the accumulation of the above-mentioned disease processes. Acquiring the Skills of proper qualification for urgent and planned further specialist activities in the field of neurotraumatology, neuro-oncology, brain vascular diseases, spine diseases, surgical treatment of pain including trigeminal neuralgia, drug-resistant epilepsy, dystonia, and Parkinson's disease. Acquiring the ability to carry out basic diagnostics and conservative treatment of pain syndromes related to degenerative changes of the spine and qualification for surgical treatment of discopathy.

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On completion of the study programme the graduate will gain:

Knowledge: Understands the importance of verbal and non-verbal communication in the process of communication with patients and the concept of trust in interaction with the patient; Knows and can distinguish basic sets of neurological symptoms; Knows and understands the causes, symptoms, principles of diagnosis and therapeutic procedure In relation to the most common central nervous system diseases in the field of: a. Swelling of the brain and its sequelae, with particular emphasis on emergencies, b. Other forms of intracranial narrowness with their consequences, c. Injuries craniocerebral, csn vascular defects, e. csn tumor, f. spine and spinal cord diseases; Knows the rules of suspicion and recognition of brain death

Skills: Can build a trusting atmosphere throughout the treatment process; He can treat a simple wound, put on and change a sterile surgical dressing

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Basic literature: 1) Lindsay K.W., Bone I., Fuller G., Neurology and Neurosurgery, wyd. Elsevier, 2010

Supplementary literature: 1) Wojciech Maksymowicz, Neurochirurgia w zarysie, wyd. PZWL, 1999 ; 2) Mirosław Ząbek, Zarysneurochirurgii, wyd. PZWL, 1999 ; 3) red. W. Kozubski - Lindsay K.W., Bone I., Neurologia i Neurochirurgia, wyd. Urban&Partner, 2006 ; 4) David N. Louis i inni, The 2016 World Health Organization Classification of Tumors of the Central Nervous System: a summary, wyd. Acta Neuropathol., 2016

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The allocated number of ECTS points consists of: 45

Contact hours with an academic teacher:5

Student's independent work:50