

UČNI NAČRT PREDMETA / COURSE SYLLABUS

Predmet:	Nevrokirurgija
Course title:	Neurosurgery

Študijski program in stopnja Study programme and level	Študijska smer Study field	Letnik Academic year	Semester Semester
Biomedicinska tehnologija/Biomedical Technology 3. stopnja/3rd Degree		2	3 ali 4

Vrsta predmeta / Course type

Izbirni/Elective

Univerzitetna koda predmeta / University course code:

Predavanja Lectures	Seminar Seminar	Vaje Tutorial	Klinične vaje work	Druge oblike študija	Samost. Delo Individ. Work	ECTS
15	20	10			105	5

Nosilec predmeta / Lecturer:

Prof. dr. Tadej Strojnik

Jeziki /

Predavanja / Lectures:

slovenski in angleški/ Slovene and English

Languages:

Vaje / Tutorial:

slovenski in angleški/ Slovene and English

Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:

Prerequisites:

Kandidat mora doseči 300 ECTS na predhodnem študiju.

Graduate degree 300 ECTS

Vsebina:

Content (Syllabus outline):

Nevrokirurško zdravljenje bolečine

- nevrostimulacija hrbtenjače za zdravljenje kronične bolečine (izbor bolnika, predstavitev sistema Medtronic, programiranje)

Nevronavigacija

- predstavitev stereotaktičnega sistema brez okvirja (BrainLAB Vector Vision neuro-navigacijski sistem, sestavni deli)
- priprava bolnika – predoperativno slikanje s kožnimi označevalci, 3D rekonstrukcija; položaj bolnika (Mayfield), registracija kožnih označevalcev z IR kamero, shranitev podatkov
- odčitavanje rekonstruiranih slik (aksialno, koronarno in sagitalno) pri VectorVision
- potek operacije z nevronavigacijo

Neurosurgical pain management

- spinal cord stimulation for the treatment of chronic pain (selection of the patient, presentation of the Medtronic system, manipulation with programmer)

Neurosurgical Navigation

- presentation of the frameless stereotactic system (BrainLAB VectorVision System, components)
- preoperative procedures (preoperative imaging with skin fiducials, CT/MR scan, data processing, positioning (Mayfield), calibration and registration)
- comprehension of the intraoperative reconstructed axial, coronal and sagittal images of the head
- surgical navigation with the BrainLAB system

Temeljni literatura in viri / Readings:

- Follett K.A., Neurosurgical Pain Management, Elsevier Saunders, Iowa, 2004
- Winn H.R., Youmans Neurologic Surgery, 5th ed., WB Saunders, 2003
- Greenberg M.S., Handbook of Neurosurgery, 5th ed., Greenberg Graphics, 2001
- Watson M.T., Maciunas R.J., Frameless Stereotactic Systems: General Considerations, In: M. Schulder, Handbook of Stereotactic and Functional Neurosurgery, Marcel Dekker, Inc., New York, Basel, 2003
- Harnof S., Spiegelmann R., Surgical navigation with the BrainLAB System, In: M. Schulder, Handbook of Stereotactic and Functional Neurosurgery, Marcel Dekker, Inc., New York, Basel, 2003

Cilji in kompetence:

Poznati nevrokirurške možnosti zdravljenja bolečine s poudarkom na nevrostimulaciji pri hudi kronični bolečini v križu in/ali nogah (indikacije, izbor kandidata, mehanizem delovanja in programiranje nevrostimulatorja).
Princip uporabe nevronavigacije, namestitve kožnih oznak in registracija z IR kamero. Branje intraoperativnih rekonstrukcij.

Objectives and competences:

Knowledge of neurosurgical pain treatment, especially neurostimulation in chronic back and/or leg pain (indication, patient's selection, functioning of the neurostimulation, programming of the appropriate level of stimulation).
Navigation, point definition and registration. Reading of the reconstructions during surgery.

Predvideni študijski rezultati:

Znanje in razumevanje:

Izbrati kandidata za nevrostimulacijo, pojasniti delovanje in programiranje stimulatorja.

Poznati sestavne dele sistema za navigacijo, namestitev kožnih označevalcev, registracija.

Prenesljive/ključne spretnosti in drugi atributi:

Ravnanje s programatorjem (za zdravnika in za bolnika) za nevrostimulacijo.

Ravnanje s kožnimi označevalci in Vector Vision sistemom.

Intended learning outcomes:

Knowledge and understanding:

To select the patient for neurostimulation, to explain the mechanism and to program the level of the stimulation.

Knowledge of the VectorVision components, attachment of skin fiducials, registration.

Transferable/Key Skills and other attributes:

Manipulation with physician and patient programmers for the neurostimulation.

Attachment of the skin fiducials in manipulation with Vector Vision System

Metode poučevanja in učenja:

Predavanja
Prikaz primerov
Seminar
Seminarske vaje

Learning and teaching methods:

Lecture
Case reports
Seminar
Tutorial

Delež (v %) /

Weight (in %)

Načini ocenjevanja:

Assessment:

pisno		written examination
ustno		oral