UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

SYLLABUS DEL CORSO

Clerkship 8

2526-5-H4102D034

Aims

To prepare students for the recognition, diagnosis, and management of neurological, neurosurgical, psychological, psychiatric, and biosensor-related conditions through integrated theoretical and clinical competencies.

1. Neurology
   To recognize signs and symptoms of neurological disorders through deep knowledge of physiopathology and semeiology of nervous system dysfunction.
   ? [1. Knowledge and Understanding]
   To learn the nosology and clinical expression of the main neurological diseases.
   ? [1. Knowledge and Understanding]
   To integrate clinical findings and diagnostic test results for the etiological diagnosis of neurological disorders.
   ? [2. Applying Knowledge and Understanding]
   ? [3. Making Judgements]
2. Neurosurgery
   To learn the principles of neurological localization through the application of semeiotics in CNS and PNS neurosurgical conditions.
   ? [2. Applying Knowledge and Understanding]
   To integrate history, semeiotics, and diagnostic tests to formulate the etiologic diagnosis of neurosurgical conditions.
   ? [2. Applying Knowledge and Understanding]
   ? [3. Making Judgements]
   To understand the elaboration of diagnostic-therapeutic pathways in both elective and emergency cases and the limits of diagnostic tests in neurosurgery.
   ? [1. Knowledge and Understanding]
   ? [3. Making Judgements]
   To integrate neuroanatomic knowledge with topographic and surgical anatomy in operative settings.
   ? [2. Applying Knowledge and Understanding]
   To understand the multidisciplinary integration of neurosurgery with ENT and Maxillo-Facial surgery.

? [1. Knowledge and Understanding]
? [5. Learning Skills]

3. Biosensors and Monitoring
   To understand the design and development of data acquisition systems for biomedical signals.
   ? [1. Knowledge and Understanding]
   To apply methods for collecting biomedical signals and extracting patient characteristics.
   ? [2. Applying Knowledge and Understanding]
   To evaluate clinical applications and use cases, particularly those involving central nervous system disorders.
   ? [3. Making Judgements]
4. Clinical Psychology
   To learn the principles of clinical psychology and neuropsychology in a hospital setting.
   ? [1. Knowledge and Understanding]
   To integrate history, semiotics, and multifactorial assessments of psychological and neuropsychological disorders.
   ? [2. Applying Knowledge and Understanding]
   To recognize when referral for psychological or neuropsychological consultation is needed.
   ? [3. Making Judgements]
5. Psychiatry
   To conduct a thorough psychiatric interview and collect a comprehensive history.
   ? [2. Applying Knowledge and Understanding]
   ? [4. Communication]
   To formulate differential diagnoses based on clinical history and psychiatric findings.
   ? [3. Making Judgements]
   To identify and prioritize diagnostic tools and formulate accurate psychiatric diagnoses.
   ? [2. Applying Knowledge and Understanding]
   ? [3. Making Judgements]
   To determine therapeutic options with a focus on precision psychiatry.
   ? [3. Making Judgements]
   To communicate the treatment plan clearly to patients and caregivers.
   ? [4. Communication]

Contents

The couse will provided elements to collect an adequate medical history, including family history, to perform a complete neurological and psychiatric evaluation o formulate the differential diagnostic hypotheses, to identify the appropriate exams to be performed and the priority of their execution, to refine the ability to interpret the results and their congruity with the patient's clinical history, to integrate the data in order to formulate an etiological diagnosis and set the appropriate therapy with attention to the risk / benefit balance of the proposed therapeutic choices.
Particular attention will also be given to the aspects of communication to the patient and his/her family in compliance with privacy laws.
The main indications for the use of instrumental investigations complementary to the discipline, both morphological (CT, MRI, PET, Cerebral Scintigraphy, Neuromuscular Ultrasound, Doppler and ECO-Doppler TSA and Transcranial) and functional (Electromyography, Electroencephalography and Evoked Potentials) will be provided.
The methods of execution and preparation for individual investigations, with practical demonstration for neurophysiological methods. From the spontaneous biological electrical signal to the provoked one. Creation of a decision-making algorithm: starting from the symptom/patient, what are the optimal paths and times for individual pathologie.,

Detailed program

The following main pathologies of the Central and Peripheral Nervous System will be addressed from the clinical, surgical and diagnostic perspectives: acute cerebrovascular diseases (ischemic strokes, cerebral hemorrhages, cerebral venous thrombosis), degenerative diseases (Alzheimer's and other dementigen diseases; Parkinson's and other movement disorders; Amyotrophic Lateral Sclerosis and other motor neuron diseases); inflammatory diseases of the Central Nervous System (multiple sclerosis, neuromyelitis optic spectrum diseases); encephalopathies / encephalitis (toxic, dysmetabolic, autoimmune, infective, paraneoplastic); diseases of the neuromuscular junction (myasthenia and myasthenic syndromes); diseases of the peripheral nervous system; epilepsy; headache and cranial neuralgias; sleep disorders; syncopes and diseases of the vegetative nervous system.
For clinical Psychology, the course will include: evaluation of clinical cases in Hospital and extra-Hospital setting (Centro Bambino e Famiglia_CBF e Consultorio Familiare). The intership in the Hospital will include a discussion of common psychological disorders related to acute or chronic illness (e.g., mood and anxiety disorder, adjustment disorder, post-traumatic stress disorders). In the extra-Hospital context the discussion of clinical cases will be on children violence and abuse (CBF) and on patients involved in the birth path (pre-conceptional counseling, pregnancy, puerperium), with procreative difficulties, difficult family relationships, couple problems and emotional difficulties.
The clinical Neuropsycholog path will include the clinical assessement of neuropsychological disorders following Acquired Brain Injury, such as Traumatic Brain Injury, Stroke, Arteriovenous Malformation, Aneurysm, Encephalitis, Encephalopathy, Brain Tumor, Neurodgenerative disorders
For Phychiatry, the course will cover
• Psychiatric interview
• Mental State Examination (vigilance, consciousness, orientation, intelligence, attention, memory, appearence and behaviour, speech, thought, perception, affectivity, impulsivity, volition, insight)
• Schizophrenia spectrum-disorders
• Depressive Disorders
• Bipolar and related Disorders
• Anxiety Disorders
• Obsessive-Compulsive and related Disorders
• Trauma- and Stressor-Related Disorders
• Somatic Symptom and related Disorders
• Substance-related and Addictive Disorders
• Personality Disorders
• Neuricognitive Disorders
• Emergencies in Psychiatry
The basic knowledge about standard sensors used to measure and monitor biological parameters. The program explores a typical data acquisition and processing system, focusing on wearables-based systems will be aslo provided. A laboratory experience allows the students to put their hands on a system used for the discrimination between different tremors deriving form different neurological pathologies.

Prerequisites

Knowledge of the neuroanatomy and physiology of the Nervous System. Neuroscience 1. Basic knowledge of physics, mathematics and electronics. Knowledge of Image diagnostics.

Teaching form

Students will be divided into small groups of 3-4 students who will rotate in the different clinical areas: ordinary

hospitalization, stroke unit, neurophysiology, first level outpatient clinic, second level outpatient clinics, emergency room. Students will be invited to personally collect the anamnesis and discuss it with their tutor, as well as to perform the clinical objective examination in the presence of the tutor who will guide them in the execution and interpretation of the results based on neurological semiotics. Diagnostic hypotheses and indications for the tests to be prescribed will be discussed together with the tutor.
Revision of images and reports during patients' experience in neuroradiology and nucleare medicine.
Laboratoey and frontal small group lesson.

Textbook and teaching resource

Mauscripts, guidelines, slides.

Semester

2nd

Assessment method

End of Clerckship evaluation, includes: >70% attendance and confirmation by the tutor of the required practical skills.

Office hours

by appointment

Sustainable Development Goals

GOOD HEALTH AND WELL-BEING | QUALITY EDUCATION