

PAIN MEDICINE - Existing sub-specialization program

WINTER SEMESTER

I Introductory lectures

- Introductory lecture. General advices regarding final research paper in the field of supraspecialization in Pain Medicine
- Promotion of the National clinical guideline of good clinical practice for the diagnosis and treatment of chronic cancer pain

II Anatomy of pain

- Neuroanatomy of nociception
- Anatomy of Pain Pathways

III The Physiology of Pain

- Theories of Pain and the Pathophysiology of Peripheral Nerve Damage
- Pain and Neuroplasticity: The Role of Dorsal Roots
- Deep, visceral, inflammatory, neuropathic pain
- Neurophysiology of acute and chronic pain
- Neurobiology of Pain in Infants and Children, Development of Painful Pathways and Pain Mechanisms

IV Assessment of Pain

- Assessment of Pain, Clinical Evaluation of Pain, Pain Questionnaires and Pain Scales
- Pediatric and neonatal scales

V Pain management

- A Pharmacotherapy of Pain
- Pharmacotherapy of Pain (Nociceptors, Dorsal Columns of the Spinal Cord and Descending Modulation)
- Pharmacotherapy of Pain, Classes of Analgesics, Mechanisms of Action
- NSAID and COX Inhibitors: Pharmacology, Classification, Mechanism of Action, Clinical Application
- Classification and Mechanism of Action of Different Opioids, Pharmacology of Opioids
- Clinical Use of Opioids
- Dependence and Opiophobia
- Topical drugs, Cannabinoids, NMDA Antagonists, Botulinum toxin, Alpha Lipoic Acid – Pharmacology, Classification, Mechanism of Action, Clinical Application
- Antidepressants Coanalgesics for Pain – Pharmacology, Classification, Mechanism of Action, Clinical Application
- Anticonvulsants – Coanalgesics for Pain – Pharmacology, Classification, Mechanism of Action, Clinical Application
- Placebo and Placebo Effect

VI Non-Pharmacological Treatment of Pain

- Transcutaneous Electroneural Stimulation
- Interventional Pain Management
- Topical Anesthesia in Management of Pain in Children
- Non-pharmacological complementary/alternative methods of Pain Management (available methods, mechanism of action and clinical effects of acupuncture)
- The Role of Physical Medicine and Rehabilitation in Pain Management – physical modalities according to the type of pain and patient population

SUMMER SEMESTER

I Cancer Pain

- Cancer Pain: Etiology, Classification and Assessment of Cancer Pain, Principles of Pain Management, Opioid Rotation
- Pharmacotherapy of Cancer Pain, Management of Breakthrough Pain
- Basics of Cancer Pain Therapy, Radiotherapy, Chemotherapy, Hormone Therapy in Pain Management
- Urgent situations in Cancer Pain Management in the Terminal Phase of the Malignant Disease
- Psychiatric comorbidities Associated With Chronic Pain. Depression and Anxiety in Painful Conditions – Recognition and Therapy
- Pain and Imminent Death
- Existential Dimension of Pain

II Non-cancer Pain

- Acute and Postoperative Pain- Etiology, Assessment, Therapy
- Pain Management in Intensive Care Units
- Acute, chronic and Preoperative Pain Management in Children
- Central Pain, Phantom Pain and Other Phenomena After Amputation
- Osteoarthritis and Rheumatoid arthritis
- Pain during soft tissue infection of the locomotor system
- Back Pain, Neck Pain and Pain in the Upper Extremities: Etiology, Pathogenesis, Therapy
- Abdominal Pain and Genitourinary Pain,

III Headaches

- Epidemiology, Classification, Clinical Presentation
- Pathophysiology of Headaches
- Sudden Onset Headaches
- Chronic, progressive and non-progressive headache
- Therapy of Primary Headaches
- Trigeminal neuralgia and atypical facial pain



IV Neuropathic Pain

- Neuropathic Pain-Epidemiology, Etiology, Classification, Characteristics, Clinical Presentation
- Therapy of Neuropathic Pain
- Neuropathic Components in Low Back Pain
- Postherpetic neuralgia
- Diabetic neuropathia, Pathogenesis, Therapy
- Pain in Older Adults
- Transcutaneous electrical nerve stimulation
- Complex Regional Pain Syndromes, Type I and II

V Special Patient Populations

- Obstetric Pain

VI EPIDEMIOLOGY OF PAIN. Metodology in research related to pain medicine.

- Disease surveillance and the importance of measures of morbidity (prevalence, incidence rates, cumulative incidence, and person-time at risk) and mortality (mortality rate and case-fatality) in pain medicine. Standardized rates. Burden of disease (DALY, YLD, YLL)
- Measuring instruments: validation and cultural adaptation of questionnaires
- Questionnaire Construction
- Application of measures of morbidity and mortality in pain medicine according to the type of research. Critical analysis of publications
- Types of studies (observational and interventional studies). A general overview of the importance of epidemiological research in pain medicine. The significance of a descriptive study in research related to pain medicine (case study, case series study, ecological study). Study design. Advantages and disadvantages.
- [Analytical studies](#). The significance of case-control studies and case-control studies based in a defined cohort (nested case-control study, case-cohort study) in research related to pain medicine. Study design. Potential biases in these studies (selection bias, information bias, confounding). Odds ratio.
- Significance of cross sectional study in research related to pain medicine. Study design. Potential biases. Sample size. Odds ratio. The significance of cohort studies (prospective and retrospective) in research related to pain medicine. Study design. Potential biases in cohort studies. Relative risk.

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- The significance of experimental studies (clinical trials, field experiment, community experiment) in research related to pain medicine. Study design. Randomisation and masking. Problems posed by noncompliance.
- Application of cross-sectional studies, case-control studies, hybrid studies, cohort and experimental studies. Critical analysis of publications.
- The significance of systematic review and meta-analysis in pain medicine
- Application of descriptive study, systematic review and meta-analysis in pain medicine. Critical analysis of publications.
- How to write a scientific paper in pain medicine
- Ethics. [Scientific misconduct and how to prevent it](#) (good mentorship, respect for human subjects involved in medical research, good clinical practice, research data management, the right to authorship, conflicts of interest)
- The natural history of disease: ways of expressing prognosis.
- Research Methodology of Pain
- Epidemiology of non cancer pain (low back pain)

VII LEGAL FRAMEWORK OF PALLIATIVE MEDICINE AND MEDICINE

- The rights of patients in accordance with the Law on Health Care, the Law on health insurance and the Law on Patients' Rights
- Rights, obligations and types of responsibility of health workers
- Criminal liability of health workers