



Study program: Doctoral Academic Studies in Biomedical Sciences

Name of the subject: RESEARCH IN INFECTOLOGY

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Status of the subject: elective

Number of ECTS points: 20

Condition: -

Goal of the subject

The aim of the course is for students to acquire knowledge of etiology and pathogenesis, clinical manifestations and current treatment of acute and chronic infectious diseases and infections. Special emphasis will be on the emerging infections, systemic inflammation related infectious diseases leading to non-communicable diseases, emerging therapeutic and preventive strategies and diagnostic markers. Special attention will be on relating infectious diseases to other areas of medicine regarding diagnostics and treatment, as well as mathematical modeling for prediction of outcomes. Students will have the opportunity to acquire the knowledge on a wide range of topics, starting with classic infectious diseases, emerging infections, SARS, MERS, SARS CoV2, Zika virus, new anthroozoonoses. Special attention will be given to chronic viral infections (hepatitis B, C and HIV) as well as the most severe conditions, such as sepsis and critically ill patients.

Outcome of the subject

Students will master the basic knowledge in the field of infectious diseases that is necessary for independent research. Students will be introduced to the current theoretical and practical knowledge needed to successfully define and examine the relationships between infectious agents, pathogenesis, clinical manifestations, outcomes and treatment of infectious diseases, enabling students to develop the research proposition.

Content of the subject

Theoretical lectures

1. Emerging infections
2. Etiopathogenesis of HIV, clinical manifestations and antiretroviral treatment
3. Metabolic syndrome and other co-morbidities related to HIV
4. Neurocognitive disorders related to HIV
5. Preventive therapeutic approaches- chemoprophylaxis od HIV infection
6. Intrahospital infections
7. Current principles of etiopathogenesis of viral hepatitis
8. Current diagnostic and treatment approaches to HBV and HCV infections
9. Liver in infectious diseases
10. Etiopathogenesis and clinical manifestations of sepsis
11. Immunology of sepsis with accent on molecular tests
12. Modern scoring systems and mathematical modeling in severe infections
13. Hemostasis in sepsis and severe infections
14. CMV infection
15. Anthroozoonoses and infectious diseases of importance for public health
16. Infections during immunosuppression
17. Gut barrier dysfunction and importance of microbiota

Practical lectures

1. Practical classes with patients
2. Introduction to laboratory prospects in diagnosis of infectious diseases
3. Introduction to diagnostic prospects in molecular biology, serological tests
4. Introduction to imaging methods relevant to infectious diseases
5. Use of available scoring systems
6. Representation of mathematical modeling
7. Introduction to information technologies in infectious diseases
8. Investigation of the influence of genetic and classical risk factors on the outcome of infectious diseases
9. Introduction to new clinical studies of drugs in infectious diseases
10. Legislation regarding infectious diseases

11. Infections in immunodeficient patients
12. Interactions of antimicrobial drugs and other drugs and immunomodulators
13. Anti-infective drugs

Recommended literature

1. Bennett JE, Dolin R, Blaser MJ, editors. Mendell, Douglas and Bennett's Principles and Practice of Infectious Diseases. 8th ed. Philadelphia: Elsevier; c2015.
2. Rockstroh JK. HIV book 2015/2016. Available at <https://www.hivbook.com/>
3. Mauss, Berg, Rockstroh, Sarrazin, Wedemeyer. Hepatology. A clinical textbook. 10th Edition 2020. Available at <https://www.hepatologytextbook.com/>
4. Surviving Sepsis Campaign. Available at <https://www.esicm.org/resources/sepsis-resources/>
5. material given during the lectures

Additional literature

1. World health organisation https://www.who.int/topics/infectious_diseases
2. Center for disease control and prevention USA <https://www.cdc.gov/>
3. European center for disease control and prevention <https://www.ecdc.europa.eu/en>
4. European AIDS Clinical Society <https://www.eacsociety.org/>
5. European Association for the Study of the Liver <https://easl.eu/>

Number of active classes

Theory: 60

Practice: 45

Methods of delivering lectures

Oral lectures, workshops, case studies, seminar paper, practical classes

Evaluation of knowledge (maximum number of points 100)

activities during lectures and practical classes: 15+15

seminar paper: 40

oral exam: 30