[Medicinski fakultet u Rijeci]

Curriculum
2023/2024

[Za kolegij]

Helicobacter Pylori infection

Study program:	**Medical Studies in English (R)** (elective) [Sveučilišni integrirani prijediplomski i diplomski studij]
Department:	**[Katedra za internu medicinu]**
Course coordinator:	**prof. dr. sc. Štimac Davor, dr. med.**
Year of study:	**4**
ECTS:	**1.5**
Incentive ECTS:	**0 (0.00%)**
Foreign language:	**Possibility of teaching in a foreign language**

Course information:

Course Helicobacter pylori infection is an elective course in the fourth year of integrated pedagogical and graduate university study Medicine consists of a total of 30 hours of teaching (1.5 ECTS), which refers to 10 hours of lectures and 20 hours of seminars. The course is performed in the premises of the Department of Gastroenterology, The Clinic for Internal Medicine of the Clinical Hospital Center Rijeka.
The aim of the course includes education on the importance of Helicobacter pylori infection in today's gastroenterology and internal medicine. The aim is to educate students about the history of discovery of helicobacter pylori bacteria and its association with gastrointestinal and other diseases, to acquire knowledge about pathophysiological processes within the H.pylori infection, to present different diagnostic modalities of detection of H.pylori infection, and to introduce students to modern approaches and guidelines for the treatment of it. Furthermore, students are trying to present the view and attitude of today's modern gastroenterology towards H.pylora and the importance that this infection has in the global health and economic aspect.
Teaching is based on lectures and seminars organized over three days. Seminars are accompanied by active discussion of students and encouraging teachers to think critically and look at the issues presented in seminars and lectures. At the end of class, students take the final written exam. By performing all teaching activities and taking the final exam, the student earns 1.5 ECTS credits.

List of assigned reading:

Vrhovac B, Jakšić B, Reiner Ž, Vucelić B, Internal medicine. Ljevak Publishing House, Zagreb 2008.

List of optional reading:

1. Loscalzo J, Fauci AS, Kasper DL, Hauser SL, Longo DL, Jameson JL, Loscalzo J, Harrison's Principles of Internal Medicine, 21st edition. McGraw-Hill Professional, 2008.
2. Feldman M, Friedman LS, Brandt LJ, Sleisenger and Fordtran's Gastrointestinal and Liver Disease. 11th edition. Saunders, 2021.
3. UpTo date – Helicobacter pylori https://www.uptodate.com/contents/search
4. Clinical key – Helicobacter pylori https://www.clinicalkey.com/#!/

Curriculum:

[Predavanja] list (with titles and explanation):

P1-2. Introductory lecture and preparation for the seminar

A general overview of the entire topic of H.yplori infection, from discovery to the basics of today's treatment and familiarization with the goals and purpose of the course.
Instructions to students for seminars in terms of focusing attention on the specifics of special segments of H.pylori infection and encouraging as productive and active discussion as possible.

P3. The significance of H. pylori infection

The definition and significance of H.pylori infection in history and today. Her position in world gastroenterology and medicine today. Health and economic significance of the diagnosis and treatment of H.pylori infection.

P4. Proton pump inhibitors in HP+ patient therapy

Presentation of pharmacodynamics and pharmacokinetics of proton pump inhibitors, their development and today's available forms. Benefits and disadvantages of proton pump inhibitor therapy. Presentation of the most important clinical research on the effectiveness of IPP in the treatment of HP infection.

P5. NSAR i HP

Introducing students to the importance and potential harm to the digestive system when applying NSAIDs. Point to the extreme distribution and often inadequate control and indication of NSAIDs. Highlight the importance of the association between the use of NSAIDs and HP infections and the possibility of preventing diseases and complications at the level of the digestive system in the use of NSAIDs in HP+ patients.

P6. Ulcers and HP

Point to the pathophysiological link between HP infection and peptic ulcer disease. Guidelines for diagnosis and treatment and monitoring of patients with ulcerative disease. Complications of an ulcerative disease.

P7. Microbiological diagnostics

Presentation of the most important methods of microbiological diagnostics of HP infection. The location of microbiological diagnostics in the diagnostic algorithm of HP infection, its importance in determining adequate eradiation therapy of HP infection.

P8. Pathohistological diagnostics

Presentation of the most important methods of PH diagnosis of HP infection, methods of coloring microscopic preparations, immunohistochemical methods and benefits and disadvantages of this type of diagnostics. The position of the pathologist in the diagnosis of HP infection. The importance of PH diagnostics in the detection of too small and malignant lesions associated with HP infection.

P9. New options in the treatment of ulcerative disease

Presentation of newer therapeutic approaches and clinical research of new treatment options. Combined treatment of HP infection with proton pump inhibitors, antibiotics and other preparations. Endoscopic treatment of complications of ulcerative disease.

P10. HP and bleeding from the gastrointestinal tract

Point to the association and increased risk of bleeding and GIT in HP+ patients. Frequency of bleeding, clinical significance, consequences, and diagnostic and therapeutic algorithms approach the patient with bleeding from GIT. The importance of hp infection eradiation in these patients and the prevention of re-bleeding.

[Seminari] list (with titles and explanation):

S1. H.pylori challenge - from mechanism to therapy

Introducing students to the structure of H.pylori, virulent and pathogenetic factors, mechanisms of causes and development of diseases and principles of treatment with respect to them.

S2. Epidemiology of HP infection

Distribution and incidence of HP infection in Croatia and the World. The importance of ethnic, socio-economic and cultural factors on the frequency of infection and the degree of eradiation.

S3. Diagnosis of HP infection - invasive tests

Presentation of invasive methods of testing HP infection with a critical view of their advantages and disadvantages, economic and clinical cost-effectiveness. Possible complications associated with these diagnostic approaches.

S4. Diagnosis of HP infection - non-invasive tests

Presentation of non-invasive methods of proving HP infection with special attention to the urea exhalation test. Pointing out the sensitivity and specificity of these tests and their applicability in the pre- and post-eradiation phase of diagnostics.

S5-6. Endoscopic diagnostics

Presentation of types of endoscopic apparatus, basic principles of endoscopic examination of the upper part of the digestive system and additional chromatographic and optical methods as supplements to conventional endoscopy in the diagnosis of mucosa changes with special attention to too small lesions and early stomach cancer. Pointing out potential dangers in inadequate diagnosis of HP infection exclusively by endoscopic means.

S7. Molecular genetics of HP infection

Basic insight into the molecular mechanisms of functioning of H.pylori and the importance of the presence of certain genetic virulent factors on the severity of infection, the risk of developing complications and resistance to therapy.

S8. Virulent factors in pathogenesis of infection

Review of the main and potential virulent factors of H.pylori, the frequency of their presence and expression in relation to geographical distribution, the frequency and severity of diseases and complications caused by them.

S9. Dyspepsia and HP

Definition, epidemiology, division and clinical picture of dyspepsia. The correlation between pathogenetic mechanisms of the onset of dyspepsia and HP infection. Clinical response in dyspeptic patients upon the implementation of H.pylori eradiation therapy.

S10. Gastritis and HP

Definition and types of gastritis. Correlation between certain forms of gastritis and the development of malignant complications. Autoimmune and specific forms of gastritis. Special attention to the development of changes in the

gastric mucosa in terms of atrophy and too small lesions such as intestinal metaplasia and dysplastic changes. Diagnostic possibilities of detection of too small lesions, their treatment and prevention of the development of stomach cancer.

S11. GERD and HP.

Definition, epidemiology and etiopathogenesis of reflux disease. Controversy and ambiguity between GERB and HP infection. Guidelines for the diagnosis and treatment of GERD and the role of the IPP and the importance of hp infection eradiation in long-term use.

S12. Stomach cancer and HP

A link between H. pylori infection and the risk of developing stomach cancer. Presentation of other risk factors, division according to pathohistological forms, clinical presentation, diagnostics and protocols for the treatment of stomach cancer.

S13. Stomach lymphoma and H. pylori

The role of H. pylori as a risk factor in the development of stomach lymphoma. Classification of this form of lymphoproliferative disease and specifications of this form of lymphoma as MALT lymphoma. The importance of early diagnosis and the principles of treatment from the radicalization of therapy to chemotherapy protocols and surgical treatment.

S14. Extra gastric manifestations of H. pylori

View existing literature data on the link between HP infection and extra gastric manifestations. The importance of including hp infection diagnostics in the diagnostic algorithm of certain diseases of this group and existing indications for the elaboration of HP infection in case of them.

S15. HP in Pediatrics

Specifics of HP infection in pediatric age. The clinical and health importance of HP infection in children, the position and role of pediatricians in the diagnostic and treatment process.

S16. HP infection therapy

Presentation of basic therapeutic options in the treatment of HP infection, pharmacodynamic, pharmacokinetic and safety aspects of this therapy. Review of treatment guidelines according to the Maastricht IV consensus and comparison with previous versions of recommendations. Highlighting the importance of the pharmacoeconomic aspect of hp infection treatment.

S17. Other types of H. pylori in the digestive tract

Overview of other specific and clinically important species of H. pylori, while highlighting their specifics and differences.

S18. Vaccine

Presentation of available vaccination research with the aim of preventing HP infection, more important achievements in the field of vaccination. The benefits and harms of the said procedure and the possibility of routine use.

S19-20. Video projections

Schematic video representation of microbiological structure and functions of H.pylori and pathophysiological mechanisms of infection development. Video images of invasive and non-invasive infection diagnosis procedures with clarification of them.

Student obligations:

Students are obliged to regularly attend and actively participate in all forms of teaching.

Exam (exam taking, description of the written/oral/practical part of the exam, point distribution, grading criteria):

ECTS scoring system:
The evaluation of students is carried out according to the current Ordinance on studies of the University of Rijeka, and according to the Ordinance on student evaluation at the Faculty of Medicine in Rijeka (adopted at the Faculty Council of the Faculty of Medicine in Rijeka).
The work of students will be evaluated and evaluated during the performance of classes, and in the final exam. Out of a total of 100 points, during class the student can score 50 points, and in the final exam 50 points.
Student evaluation is done using ECTS (A-E) and the numerical system (1-5). Evaluation in the ECTS system is carried out by absolute distribution, and according to the graduate evaluation criteria.
From the maximum 50 scoring points that can be achieved during class, the student must collect a minimum of 25 scoring points to take the final exam. Students who collect less than 25 grade points will have the opportunity for one remedial among the exam and, if they meet on this one of the exams, they will be able to take the final exam.
During class, it is evaluated (maximum up to 50 points):
a) attendance (up to 10 points)
b) teaching activity (up to 40 points)

attendance (up to 10 points)
The student may miss 20% of the classes solely for health reasons, which he justifies with a doctor's apology. Attendance at lectures and exercises is mandatory. Reimbursement of exercises is possible with prior agreement with the manager.
If the student is justified or unjustifiably absent from more than 20% of classes, the student cannot continue following the course and loses the possibility of taking the final exam. The student collected 0 ECTS credits and was rated F.
Scoring attendance in class (lectures and exercises) will be performed as follows:
% Attendance Rating points
70 – 85 3
86 – 100 5
b) teaching activities (up to 40 points)
During the classes, the preparedness of students for seminars, active participation in critical discussion after seminars, elaboration of issues presented in seminars, independent work in terms of research of literature data and additional proposals in the concept of teaching are evaluated

Other notes (related to the course) important for students:

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COURSE HOURS 2023/2024

Helicobacter Pylori infection

[Predavanja] (Place and time or group)	**[Seminari]** (Place and time or group)

List of lectures, seminars and practicals:

[PREDAVANJA] (TOPIC)	Number of hours	Location
P1-2. Introductory lecture and preparation for the seminar	2	
P3. The significance of H. pylori infection	1	
P4. Proton pump inhibitors in HP+ patient therapy	1	
P5. NSAR i HP	1	
P6. Ulcers and HP	1	
P7. Microbiological diagnostics	1	
P8. Pathohistological diagnostics	1	
P9. New options in the treatment of ulcerative disease	1	

P10. HP and bleeding from the gastrointestinal tract	1	

[SEMINARI] (TOPIC)	Number of hours	Location
S1. H.pylori challenge - from mechanism to therapy	1	
S2. Epidemiology of HP infection	1	
S3. Diagnosis of HP infection - invasive tests	1	
S4. Diagnosis of HP infection - non-invasive tests	1	
S5-6. Endoscopic diagnostics	2	
S7. Molecular genetics of HP infection	1	
S8. Virulent factors in pathogenesis of infection	1	
S9. Dyspepsia and HP	1	
S10. Gastritis and HP	1	
S11. GERD and HP.	1	
S12. Stomach cancer and HP	1	
S13. Stomach lymphoma and H. pylori	1	
S14. Extra gastric manifestations of H. pylori	1	
S15. HP in Pediatrics	1	
S16. HP infection therapy	1	
S17. Other types of H. pylori in the digestive tract	1	
S18. Vaccine	1	
S19-20. Video projections	2	

EXAM DATES (final exam):