[Medicinski fakultet u Rijeci]

Curriculum
2024/2025

[Za kolegij]

Overview of Clinical Cases in Immunology

Study program:	**Medical Studies in English (R)** (elective) [Sveučilišni integrirani prijediplomski i diplomski studij]
Department:	**[Katedra za fiziologiju, imunologiju i patofiziologiju]**
Course coordinator:	**prof. dr. sc. Trobonjača Zlatko, dr. med.**
Year of study:	**2**
ECTS:	**1.5**
Incentive ECTS:	**0 (0.00%)**
Foreign language:	**Possibility of teaching in a foreign language**

Course information:

The aim of the course is to familiarize students with the pathological function of the immune system through the presentation of clinical cases. The emphasis is on explaining the pathophysiological mechanisms that lead to the disruption of normal immune processes, as well as on the possibilities of therapeutic actions on the immune reaction. The tasks of the class are to enable the student to connect basic knowledge in immunology and the pathophysiology of the immune system with nosological entities found in clinical medicine. The course includes the following entities: X-linked agammaglobulinemia, Congenital asplenia, MHC class I deficiency, X-linked severe combined immunodeficiency, Toxic shock syndrome, Hereditary angioneurotic edema, Graft-versus-host reaction, AIDS, Myasthenia gravis, Allergic asthma, Multiple sclerosis, Rheumatic fever

List of assigned reading:

Rosen F., Geha R. and Notarangelo L.: Case Studies in Immunology: a clinical companion 7 th edition, Garland science, 2016.

List of optional reading:

Curriculum:

[Seminari] list (with titles and explanation):

Seminar 1: X-linked agammaglobulinemia, Congenital asplenia

1. To explain the processes of normal B-cell maturation, and the effector functions of antibodies.
2. To explain the consequences of the B lymphocytes' primary maturation disorders and the disorders in humoral-specific immunity t.
3. To explain the role of the spleen in immunity and the immunological and clinical consequences of its deficiency

Seminar 2: MHC Class II Deficiency, X-linked severe combined immunodeficiency (X-SCID)

1. To describe the features of the gene organization of the MHC system and the endogenous pathway of antigen presentation.
2. To describe the development of cytotoxic T lymphocytes in the thymus on MHC class I molecules, and the clinical disorders that arise due to the inability of these cells to mature.
3. To explain the processes of primary maturation of T lymphocytes, the causes of the absence of their production and the clinical features of disorders that arise as a result

Seminar 3: Toxic shock syndrome, Hereditary angioedema

1. To describe the structure and genetic organization of the T-lymphocyte receptor, as well as the properties of T-cell activation and the role of superantigens.
2. To describe the features of macrophage activation by cytokines, and the clinical manifestations of toxic shock.
3. To explain the features of the classical and alternative pathways of complement activation.
4. To describe the clinical consequences of serine protease inhibitor deficiency (inhibitor of activation of the complement component C1) in the pathogenesis of hereditary angioneurotic edema.

Seminar 4: Graft-Versus-Host Disease, AIDS

1. To describe the processes of T-lymphocyte recognition of foreign MHC molecules, and the characteristics of bone marrow transplantation.
2. To explain pathogenetic mechanisms and clinical features of transplantation disease.
3. To describe the features of HIV infection and immune control of HIV infection. Describe the features of the pathogenesis of HIV disease and the consequences of insufficient cellular and humoral immunity

Seminar 5: Myasthenia Gravis, Allergic Asthma

1. To describe the mechanisms of the immune tolerance of self and the development of humoral autoimmune disorders.
2. To describe the pathogenesis and clinical features of myasthenia gravis.
3. To describe the mechanisms of IgE-mediated hypersensitivity.
4. To describe the pathogenesis and clinical signs of allergic asthma, and skin hypersensitivity prick test.

Seminar 6: Multiple sclerosis, Hemolytic disease of the newborn

1. To describe the mechanisms of development of central and peripheral tolerance.
2. To describe the development of autoimmune mechanisms in cellular immunity and clinical signs and symptoms of multiple sclerosis.
3. To describe the consequences of the Rh incompatibility between mother and fetus.
4. To explain the pathogenesis and clinical features of the fetal erythroblastosis.

Student obligations:

Classes are conducted in the form of seminars. At the seminars, the student actively discusses pathophysiological immune mechanisms with the teacher. Student obligations include regular attendance at seminars. The student is obliged to prepare the material that is discussed in class.

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

Regular attendance of classes.

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

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COURSE HOURS 2024/2025

Overview of Clinical Cases in Immunology

[Seminari] (Place and time or group)
08.04.2025
Seminar 1: X-linked agammaglobulinemia, Congenital asplenia: • [ONLINE] (10:00 - 13:00) [209]   ○ OCCI
prof. dr. sc. Trobonjača Zlatko, dr. med. [209]
11.04.2025
Seminar 2: MHC Class II Deficiency, X-linked severe combined immunodeficiency (X-SCID): • [P07] (14:00 - 17:00) [209]   ○ OCCI
prof. dr. sc. Trobonjača Zlatko, dr. med. [209]
14.04.2025
Seminar 3: Toxic shock syndrome, Hereditary angioedema: • [ONLINE] (08:00 - 11:00) [209]   ○ OCCI
prof. dr. sc. Trobonjača Zlatko, dr. med. [209]
15.04.2025
Seminar 6: Multiple sclerosis, Hemolytic disease of the newborn: • [ONLINE] (08:00 - 11:00) [209]   ○ OCCI
prof. dr. sc. Trobonjača Zlatko, dr. med. [209]
30.04.2025
Seminar 5: Myasthenia Gravis, Allergic Asthma: • [P04] (13:00 - 16:00) [209]   ○ OCCI
prof. dr. sc. Trobonjača Zlatko, dr. med. [209]
07.05.2025
Seminar 4: Graft-Versus-Host Disease, AIDS: • [P07] (15:30 - 19:15) [209]   ○ OCCI
prof. dr. sc. Trobonjača Zlatko, dr. med. [209]

List of lectures, seminars and practicals:

[SEMINARI] (TOPIC)	Number of hours	Location
Seminar 1: X-linked agammaglobulinemia, Congenital asplenia	4	[ONLINE]

Seminar 2: MHC Class II Deficiency, X-linked severe combined immunodeficiency (X-SCID)	4	[P07]
Seminar 3: Toxic shock syndrome, Hereditary angioedema	5	[ONLINE]
Seminar 4: Graft-Versus-Host Disease, AIDS	4	[P07]
Seminar 5: Myasthenia Gravis, Allergic Asthma	4	[P04]
Seminar 6: Multiple sclerosis, Hemolytic disease of the newborn	4	[ONLINE]

EXAM DATES (final exam):
