Medical University – Plovdiv

Department of Microbiology and Immunology

Syllabus

for clinical immunology exam

1. Clinical Immunology. Subject and parts – general characteristics. Basic humoral and cellular mechanisms for developmental of defense and immunopathological reactions.
2. Innate immunity. Comparison with adaptive immunity. Factors of innate immunity – mechanical barriers, cellular and humoral factors. Clinical significance of innate immunity mechanisms. The inflammation as a defense and pathological process.
3. Adaptive immunity and immune response. Immune system – the basis of immune response. Anatomy and structure of the immune system – immune organs (primary and secondary), immune cells (populations, markers and function), molecules (cytokines and antibodies), HLA genes and their products.
4. Development of immune response. Stages of the immune response. Types and forms of the immune response according to the antigen (immune response against intracellular and extracellular antigens). Dynamics of the immune response – primary and secondary immune response. Immune memory. Regulation of immune response.
5. Infectious immunology. Immune response in bacterial, viral, mycotic infections.
6. Immune deficiencies. Definition and origin.Immunological characteritics of primary and secondary immune deficiencies. Syndromes and diseases.
7. Allergy. Terms. Types of alleregens. Types of allergic reactions – characteristics, mechanism of tissue damage, diseases and syndormes – examples.
8. Autoimmune reactions and diseases. Terms. Immune tolerance – definition, underlying mechanisms and immune processes for its maintenance. Causes and mechanisms for development of autoimmunity. Types of autoimmune diseases – organ-specific and non-organ specific. Immunological characteristics.
9. Tumor immunology.Tumor antigens. Immunological mechanisms against tumors. Immunological diagnosis of the tumor diseases. Anti-tumor immune prophylaxis and immune therapy – basic approaches.

10. Transplantation immunity. The role of MHC molecules in transplantation.Post-transplantational immune response – types of reactions and mechanisms; graft versus host disease. Pre- and posttransplantational immune monitoring.Haemotransfusion reactions.
11. Immunological methods for testing innate and adaptive humoral factors – tests for complement and other serum proteins (agglutination, precipitation, complement-fixation and labeled immune reactions) – principles, clinical application and interpretation.
12. Immunological methods for testing innate and adaptive cellular factors – tests for phagocytosis and immune phenotyping – principles, clinical application and interpretation.Immune status and monitoring – examples in various immune disorders.
13. Immune modulation – terms and parts. Immune stimulation – specific and non-specific immune prophylaxis and therapy. Examples and application.

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