

Microbiology curriculum

Virology, Parasitology, Mycology

2nd year medical students

II semester

Lectures

2 hours/week (14 weeks)

1. General properties of viruses. Virion structure. Chemical composition of viruses. Viral replication. Cultivation of viruses.
2. Viral genetics. Subviral agents: viroids, prions. Bacteriophages. Viral vectors, Gene therapy.
3. Pathogenesis of viral infections. Host-virus interactions.
4. Immunity in viral infections. Chemotherapy of viral infections. Immunotherapy, prophylaxis.
5. Classification of viruses. DNA viruses: Adenoviridae, Herpesviridae, Parvoviridae, Papillomaviridae, Polyomaviridae, Poxviridae
6. RNA viruses: Arenaviridae, Bunyaviridae, Caliciviridae, Coronaviridae, Filoviridae, Flaviviridae, Orthomyxoviridae, Paramyxoviridae, Picornaviridae, Reoviridae, Retroviridae, Rhabdoviridae, Togaviridae
7. Human hepatitis viruses. Human immunodeficiency virus.
8. Oncogenic viruses. Viral infections.
9. Classification of parasites. Protozoa (*Amoebas*, *Trichomonas* spp., *Giardia lamblia*, *Toxoplasma gondii*.) – integrated lecture
10. Flat worms. Round worms.
11. Tropical parasitoses. - TBL
12. General properties and classification of fungi. Pathogenesis of fungal infections. Dermatophytes (*Microsporium*, *Trichophyton*, *Epidermophyton*). Systemic mycoses (*Coccidioides* spp., *Histoplasma capsulatum*, *Blastomyces dermatitidis*)
13. Opportunistic fungal infections (*Candida* spp., *Cryptococcus neoformans*, *Aspergillus* spp., *Pneumocystis jirovetzi*).
14. Infections of the immunocompromised host. Microbiological diagnosis of various infections.

Practical activities

14x2 hours

1. Microbial growth control. Specimen collection and shipment for virology. Diagnostic algorithm in virology. Study of viral morphology.
2. Cultivation of viruses. Antigen-antibody reaction based methods. Detection of nucleic acids.
3. Laboratory diagnosis of herpetic infections. Diagnosis of infections caused by human papillomaviruses. Diagnosis of viral infections of the respiratory tract.
4. Laboratory diagnosis of viral hepatitis. Diagnosis of HIV infection.
5. Practical exam
6. Parasitological diagnosis. Protozoa (*Entamoeba* spp., *Trichomonas vaginalis*, *Giardia lamblia*, *Toxoplasma gondii*)
7. Flat worms (*Fasciola hepatica*, *Diphyllobothrium latum*, *Dipylidium caninum*, *Echinococcus granulosus*, *Taenia saginata* și *Taenia solium*, *Hymenolepis* spp.)
8. Round worms (*Ascaris lumbricoides*, *Enterobius vermicularis*, *Toxocara canis*, *Ankylostoma duodenale*, *Strongyloides stercoralis*, *Trichinella spiralis*)
9. Mycological diagnosis. Laboratory diagnosis of infections caused by yeasts. Laboratory diagnosis of infections caused by *Pneumocystis jiroveci*.
10. Laboratory diagnosis of infections caused by non-septate moulds, septate hyaline molds, septate molds. Laboratory diagnosis of infections caused by dermatophytes.
11. Microbiological diagnosis of respiratory tract, enteric, genitourinary, central nervous system and bloodstream infections - case reports
12. Microbiological diagnosis of hepatitis and infections of immunocompromised patients - case reports
13. Review
14. Exam

References

1. Brooks G.F., Butel, J. S., Morse, S.A.: *Jawetz, Melnick, Adelberg's Medical Microbiology*, 23rd edition. 2006
2. Greenwood D., Slack RCB, Peutherer JF: *Medical Microbiology. A guide to microbial infections: pathogenesis, immunity, laboratory diagnosis and control*. 16th edition, Churchill Livingstone, 2002.
3. Joklik W.K., Willet H.P., Amos D.B., Wilfert C.M., Zinsser – *Medical Microbiology* 20th edition, Appleton&Lange, 1992
4. Kayser FH., Bienz KA., Eckert J, Zinkernagel RM: *Medical Microbiology*, Georg Thieme Verlag, Stuttgart, 2005
5. Koneman: *Color Atlas and Textbook of Diagnostic Microbiology*, Lippincott, 2006
6. Levinson W: *Medical Microbiology and Immunology*. 8th edition, Lange Medical Books, 2004
7. Murray, P.R., Rosenthal, K.S., Kobayashi, G.S., Pfaller, M.A.: *Medical Microbiology*, Fourth Edition. Mosby 2002.

Lecturer
Dr. Székely Edit
Associate Professor

Head of Department
Dr. Felicia Toma
Associate Professor