MMB - C302
MEDICAL MICROBIOLOGY

L T Credit
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Learning objectives:

- To know the development and contribution of scientist in microbiology.
- Student will understand the disease caused by the bacteria, fungi, virus and protozoa.
- To know the diagnosis and treatment of bacterial, fungal and viral pathogens.

Learning outcomes:

At the end of course student will be able to

- Understand the development and contribution of different scientist in the field of medical microbiology.
- Describe etiology, pathogenicity, epidemiology and laboratory diagnosis of disease caused by microorganism.
- To isolate and detect the pathogens from the clinical samples.
- Suggest different antimicrobial agent for the treatment of bacterial infections.

UNIT – I

Basics of medical microbiology- Early discovery of pathogenic microorganisms, development of bacteriology as scientific discipline, contribution of early microbiologists; classification of medically important microorganisms; normal microflora of human body, role of resident flora on human health; infection- types of infection, pathogenicity;characteristics of infectious diseases - disease cycle (sources of disease, reservoirs, carriers); transmission of pathogens. **(13 Lectures)**

UNIT – II

Bacterial Diseases: Characteristics of a successful pathogen, virulence factors- entry, adherence, invasiveness, iron sequestering, antiphagocytic factors, host-mediated pathogenesis, antigenic variation,bacterial diseases-characteristic features of causal organisms, symptoms, epidemiology, prophylaxis and treatment of diseases caused by *Salmonella, Vibrio, Mycobacterium, Neisseria, Corynebacterium, Staphylococcus.*

(16 Lectures)

UNIT – III

Viral diseases- Classification, epidemiology, symptoms, pathogenesis, diagnosis and treatment of diseases caused by adenovirus, poxvirus, herpesvirus, hepatitis B virus, influenza virus, SARS COVID-19, paramyxovirus (mumps, measles and rubella viruses), rabdoviruses, retrovirus (HIV) and ebola virus.

(13 Lectures)

UNIT – IV

Fungal diseases- Significance of fungi in human health, mycoses and mycotoxicoses, superficial mycoses (Tineanigra), subcutaneous mycoses (chromoblastomycosis, basidiobolomycosis), dermatophytoses (Tineacapitis, Tineabarbae, Tineacorporis, tineacruris, Tineaunguium, Tineapedis), systemic mycoses (histoplasmosis, candidiasis, aspergillosis). **(13 Lectures)**

UNIT – V

Diagnosis and antimicrobial therapy-Methods of specimen collection, transportation and storage;laboratory diagnosis-identification of pathogens through microscopy, culture, serology and molecular biology; antimicrobial chemotherapy - development of chemotherapy, antimicrobial drugs and their mode of actions, drug resistance, various methods of drug susceptibility testing and its significance, MICs and MBCs, antibiotic assay in body fluids; vaccines- vaccination schedules,

(15 Lectures)

Suggested Reading

1. Dubey R.C. and Maheshwari, D.K. *A Textbook of Microbiology.* 3rd ed., S. Chand & Co, Ram Nagar, New Delhi, p. 1034. ISBN 81-219-2620-3
2. Mackie and McCartney. Practical Medical Microbiology, Elsevier
3. CKJ Paniker. Test Book of Microbiology, Orient Longman
4. D.R.Arora. Medical Mycology, CBS Publisher and Distributors

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