

Teaching topics : Infectious Disease (fungus, bacteria and virus)

Teaching outline :

I. General Principles of Microbial Pathogenesis

- A. Transmission and Dissemination of Microbes
- B. Host defenses against infection
- C. Immune Evasion by Microbes
- D. How Microorganisms Cause Disease
 - a. Bacterial toxins
 - b. Exotoxins
 - c. Neurotoxins

II. Viral Infection

- A. Acute (transient) infection
 - a. Measles
 - b. Mumps
 - Parotitis, orchitis, pancreatitis, encephalitis
 - c. Poliovirus
 - Motor neurons of spinal cord and brain stem (poliomyelitis)
 - d. West Nile virus
 - CNS disease: meningoencephalitis
 - e. Viral hemorrhagic fever
 - Hemorrhage and necrosis
 - Thrombocytopenia; increased permeability; DIC
- B. Viral hemorrhagic fever
- C. Latent infections
 - a. Herpes simplex virus (HSV)
 - b. Varicella-Zoster virus (VZV)
 - c. Cytomegalovirus (CMV)
- D. Epstein-Barr Virus (EBV)

III. Bacterial Infections

- A. Gram-positive bacterial infections
 - a. Staphylococcal infections
 - b. Streptococcal infections
 - c. Diphtheria
 - d. Listeriosis
 - e. Anthrax
 - f. Nocardia
- B. Gram-negative bacterial infections
 - a. Neisserial Infections
 - b. Whooping cough
 - c. Pseudomonas infections
 - d. Plague

- e. Chancroid (soft chancre)
- f. Granuloma inguinale

C. Mycobacteria

- a. Tuberculosis
- b. Leprosy

D. Spirochetes

- a. Syphilis

E. Anaerobic bacteria - Clostridial infections

- a. *Clostridium perfringens*:
 - gas gangrene
- b. *Clostridium tetani*:
 - Tetanus
- c. *Clostridium botulinum*
 - Botulism
- d. *Clostridium difficile*
 - Pseudomembranous colitis

F. Obligate intracellular bacteria

- a. Chlamydial Infections
 - Trachoma
 - Genital infection by *C. trachomatis* is the most common sexually transmitted bacterial disease in the world
- c. Rickettsial Infections
 - Typhus

IV. Fungal Infections

A. Candidiasis

- Cutaneous candidiasis

B. Cryptococcosis

C. Aspergillosis

D. Zygomycosis (mucormycosis)