Microbial Diseases of the Cardiovascular System

Viral, Protozoal and Helminthic Infections

**Epstein-Barr Virus (EBV)**

- **Agent of infectious mononucleosis**
  - Association with late and post-adolescence is socioeconomic
  - The mononucleosis refers to prevalence of peripheral B cells at some stage in the infection
- Transmission is by saliva
- Infection with EBV, often asymptomatically, is very common
- Most serious association is with certain cancers
  - Burkitt’s lymphoma
  - Nasopharyngeal carcinoma

**Cytomegalovirus, CMV**

- Another very common herpesvirus
- Predominantly inapparent infection during childhood
- Clinical concerns
  - If acquired by a nonimmune woman during pregnancy, it may cause congenital mental retardation or hearing loss
  - If acquired from transplanted tissue, it may cause serious systemic infection
  - May also cause serious infections in immunocompromised patients; *cytomegalovirus retinitis* affects many AIDS patients
“Classic” Viral Hemorrhagic Fevers

- **Yellow fever**
  - Very serious viral infection endemic in tropical areas, but at one time common in the U.S.
  - Control is by control of mosquito vectors
- **Dengue**
  - Also transmitted by mosquito vectors, usually milder than yellow fever
  - Some limited incidence in the U.S.
  - Most serious complication is *dengue hemorrhagic fever*

Emerging Viral Hemorrhagic Fevers

- *Ebola virus* causes a horrendously lethal infection
  - Clearly zoonotic, but the primary host has not been identified
  - Most victims have been health care workers
- *Hantavirus* pulmonary syndrome
  - Reservoir may be rodents and other small animals
  - May lead to renal damage

*Plasmodium* infection - Malaria

- Very high prevalence worldwide
  - Infects 300-500 million people
  - 2-4 million deaths annually
- Severity varies; most dangerous due to *P. falciparum*
- Transmitted by mosquito
- Complex life cycle involving different stages in different hosts
- Control options are limited
**Toxoplasmosis**

- *Toxoplasma gondii* infection
- Domestic cats are the definitive host
- Oocysts may be acquired from contaminated meat or from cats
- Main clinical concerns
  - Congenital infection leading to fetal damage
  - Neurological impairment in immunocompromised hosts
Trypanosome infections

- **Chagas’ Disease**
  - *Trypanosoma cruzi* transmitted by reduviid bugs
  - Widespread in Latin America, some occurrence in U.S.

- **African Trypanosomiasis**
  - “Sleeping sickness” reflecting CNS involvement
  - Transmitted by tsetse flies

- **Leishmaniasis**
  - Range of infections cause by *Leishmania* species
    - Visceral leishmaniasis
    - Cutaneous leishmaniasis
    - Mucocutaneous leishmaniasis
  - Transmitted by sandflies

Schistosomiasis