

Chapter 26 - Arthropod Borne Diseases

- Rely on **Vectors**: ticks, lice, fleas, mosquitoes, etc.

1. **Mechanical Vector**: literally carries the disease organism from one place to another. Ex. flies
2. **Biological Vector**: actually part of the life cycle of the etiological agent. Ex. mosquitoes

Bacterial Arthropod-Borne Diseases

Plague (Black Death)

Bubonic Plague

- *Yersenia pestis*
- hemorrhaging occurs under skin
- reservoir = rat
- vector = rat-flea
- 25% mortality
- travels through blood to lymph nodes
- bubo's (enlarged red swollen lymph nodes), chills, fever, nausea
- treatment: streptomycin, tetracycline

Pneumonic Plague

- when infection is passed from lung aerosols
- 100% mortality

Rocky Mt. Spotted Fever (mostly around NC and VA areas)

- *Rickettsia rickettsii*
- lives in the American dog tick
- fever, chills, red rash including palms, soles, and trunk
- 20 - 70% mortality
- treatment: Chlorphenacal

Lyme Disease

- *Borrelia burgdorferi*
- spread by deer ticks (tiny) & white footed mouse
- seasonal
- skin rash called "Erythema Chronicum Migrans" (ECM) looks like a bulls eye
- lesions leading to flu
- arthritis, paralysis
- fever, headache, nausea
- ID with fluorescent Ab test
- on the rise currently in VA
- treatment: tetracycline, penicillin

Viral Arthropod borne Diseases

Yellow Fever - came about with the completion of the Panama canal

- *Yellow Fever virus*
- RNA
- carrier = mosquitoes
- Bite → Blood Stream → Lymph nodes → Kidney, Spleen, Heart
- fever, chills, nausea, headache, vomiting
- 50% mortality
- control = eliminate vector with pesticides (but most have build up resistance)
- vaccine = 20 yrs of immunity

Dengue Fever - "Break-Bone" Fever

- *Flavi virus*
- transmission = Mosquitoes
- high fever, muscle/joint pain
- prevention = destroy mosquitoes
- spread nosocomially

Dengue Hemorrhagic Fever

- when bleeding is associated with Dengue Fever
- more virulent

Protozoan Arthropod borne Diseases

Malaria - fig. 26.17 p. 732

- *Plasmodium*
- Host = mosquitoes and humans
- chills, vomiting, headache, 104 fever
- alternating symptoms/asymptoms period (1-3 days each)
- travels to liver cells from bite then infects RBC and releases toxin
- diagnose through blood smear
- younger individuals = anemia
- treatment:
 1. quinine (first) now resistant
 2. chlorquine (2nd) mostly resistant
 3. Primaquin (3rd) still somewhat effective
 4. Now combining all drugs to try and overcome the resistance