Influenza

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Overview

- Commonly referred to as the flu
- Defined as a highly contagious viral infection where it starts at the upper respiratory tract and attacks the nose, throat, lungs, and bronchial tubes
- A serious infection which afflicts more than 60 million Americans every year
- Ranks 8th in America as one of the leading causes of death
Overview (continued)

• Ranks 8th in America as one of the leading causes of death

• Not the common cold
  • More severe disease
  • Caused by a different type of virus

• Caused by RNA viruses of the family
  • called Orthomyxoviridae
History

- 1580 - first pandemic
- 17th & 18th centuries
  - 1830-1833 - particularly widespread
- 1918 - “Spanish Flu”
- *1933 - human influenza virus was isolated
- 1957 - Hong Kong/ “Asian Flu
- 1976 - swine flu influenza “outbreak”
Spanish Flu (1918)

• Global disaster
• 1918-1919
• Killed ~20 million people
• Most devastating epidemic in recorded world history
• Especially dangerous to young adults
  • Morbidity changed dramatically
• Two outstanding characteristics:
  • Killed millions of people
  • Prime of their life
• Infected 28% of all Americans
Transmission

- Often spread by the human cough
- Shedding
- Most infective between the second and third days after infection
Transmission

- Direct transmission
- Airborne route
- Hand to eye
- Hand to nose
- Hand to mouth
- Contaminated surfaces/ direct personal contact
Epidemiology

- Who can get the flu? everyone!

- Groups who are at a higher risk of complications include adults 50 and over, children who are 6 months through 2 years of age, women more than 3 months pregnant, and people with diabetes

- Both an emerging and reemerging disease

- Epidemics usually occur during cold winter months, and peak of influenza epidemics occurs as late as April or May

- Each year more than 200,000 people are hospitalized with the flu and around 36,000 die from influenza complications.
Etiology

- Mode of Transmission- person to person through close contact
- Portal of Entry- Direct contact with airborne droplets
- Hosts- birds, swine, horses, ducks, chickens, seals
- Vector- humans
- Acquired disease
Pathology/Pathophysiology

- Target: epithelial cells of the lungs
- Incubation period: 1-4 days [host can spread virus, even though host does not show symptoms]
- Attaches onto host cell with hemagglutinin [H] and Neuraminidase [N] protein
- Neuraminidase penetrates the host cell membrane and enters
- Once inside host cell, virus begins replicating in the nucleus
Pathology/Pathophysicsology Pt. 2

- using neuraminidase protein, virus wraps itself in a lipid coat and buds
- invades other cells, usually results in death of host cell
Types of Virus

- Influenzavirus A
  - Most virulent human pathogen
- Influenzavirus B
  - Mutates slower
- Influenzavirus C
  - Less common, local epidemics
Antigenic Shift
Symptoms

- Fever
- Headache
- Coughing
- Sneezing
- Sore throat
- Fatigue

- Nasal congestion
- Chills
- Diarrhea
- Vomiting
- Loss of appetite
- Nausea
Symptoms of Influenza

Central
- Headache

Systemic
- Fever (usually high)

Muscular
- (Extreme) tiredness

Joints
- Aches

Nasopharynx
- Runny or stuffy nose
- Sore throat
- Aches

Respiratory
- Coughing

Gastric
- Vomiting
Treatment

- Drink plenty of liquids
- Rest well
- Taking over the counter medicines such as Tylenol or Advil to relieve a fever
- The recommended yearly flu shot is the best protection against catching the flu.
Bibliography


- National Foundation for Infectious Diseases. Influenza Overview http://www.nfid.org/influenza/