

# VIROLOGY LECTURE

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# Rodents- Transmitted Viruses

## Family: Arenaviridae

- Lassa fever virus
- Machupovirus (Bolivian hemorrhagic fever)
- Junin virus (Argentinian H.F.)

## Family: Bunyaviridae:

- Hanta virus (H.F. with renal syndrome)
- All these viruses are transmitted to human through direct contact with rodents, excreta or eating contaminated food.
- They cause hemorrhagic fever, shock syndrome and cardiovascular collapse.
- Fatality rate 5-35%

# Lassa Fever

## Viral etiology:

- Lassa virus
- Family : Arenaviridae
- ss-RNA genome
- The virus has been discovered in 1969, in Nigeria (*West Africa*)

## Transmission:

- The animal reservoir for the virus is a rodent known as the “Multi-mammal rat”
- Infected rodents shed the virus in their excreta
- Transmission occurs by direct contact with the rodents excreta, or eating food contaminated with these materials.
- Inhalation of tiny particles contaminated with rodents excretions.
- Person-to-person transmission occurs by direct contact with infected blood and body fluids.
- Through contaminated medical equipments.

# Lassa Fever (Continued)

## Symptoms:

- Fever
- Back pain
- Cough
- Abdominal pain
- Nausea
- Vomiting
- Diarrhea
- Mucosal bleeding
- Neurological problems (**Tremors & encephalitis**)

## Prognosis:

- 80% of infected individuals show no symptoms or had mild illness
- About 20% have severe multi-system disease
- About 15-20% of hospitalized patients will die from the illness

# Lassa Fever (Continued)

## Lab. Diagnosis:

- Must be accomplished under maximum biological containment conditions
- The commonly used diagnostic methods are:
  - Detection of IgM – Ab
  - Isolation of the virus in tissue culture, followed by identification

## Treatment:

- Ribavirin is effective if given within the first six-days of illness
- Ribavirin should be given intravenously for 10 days.

## Prevention Measures:

- The ideal method of prevention in endemic areas is to control rodents:
  - Avoid contact with rodents
  - Putting food away in rodent-proof containers
  - Keeping home clean
  - Trapping rodents to reduce rodent population

# Lassa Fever (Continued)

## Infection Control Measures:

- The main methods for controlling the infection are:
  1. Isolation of cases
  2. Disinfection
  3. Surveillance of contacts
  4. Control of rodents

## Isolation:

- Hospital infection has occurred when inadequate infection control measures were practiced
- Strict barrier isolation of cases in a hospital room
- Strict procedures for handling of body fluids and excreta

## Disinfection:

- Patients excreta, sputum, blood and all objects with which the patient has contact, should be disinfected with 0.5% sodium hypochlorite solution or autoclaving.

## Lassa Fever (Continued)

### Surveillance of Contacts:

- Identify all close contacts (people living, caring for) in the three weeks after the onset of illness
- Close surveillance of contacts should be established by conducting body temperature checks at least two times daily for three weeks after last exposure.
- In case of temperature greater than 38.3°C, hospitalize immediately in isolation facilities.