

FACT SHEET

LASSA FEVER

The following information will help you to become familiar with the epidemiology, symptomatology, ecology and control of Lassa Fever.

WHAT IS LASSA FEVER?

Lassa Fever is an acute febrile viral disease transmitted through aerosol or direct contact with rodent excreta. The disease, known to occur throughout Africa but epidemics have occurred only in areas of West Africa; Sierra Leone, Liberia, Guinea and regions of Nigeria.

Cases have been reported in Europe from patients with a history of travel in Africa. In 1997, Lassa Fever was reported in Frankfurt, Germany.

HOW IS LASSA FEVER TRANSMITTED?

Lassa Fever is transmitted through primarily through aerosol or direct contact with the excreta of infected rodents deposited in food or on surfaces such as floors and beds. Person to person transmission occurs, especially in a hospital environment. Direct contact with blood, pharyngeal secretions or urine or sexual contact with infected individuals are the primary means of person to person transmission.

Person to person transmission may occur during the acute febrile phase when the virus is present in the throat and is easily aerosolized. Virus may be excreted in the patients urine for 3 – 9 weeks after the onset of illness.

The virus is maintained in wild rodents. The multimammate rat (*Mastomys* species complex) has been implemented as the major reservoir. These rats fill the niche normally occupied by the Norway rat (*Rattus norvegicus*) and are a major pest throughout Africa.

WHAT ARE THE SYMPTOMS?

Symptoms commonly appear after a 6 – 21 day incubation period. Lassa Fever is characterized by a gradual onset, malaise, fever, headache, sore throat, cough, nausea, vomiting, diarrhea, myalgia, and chest and abdominal pain. The fever may be persistent or intermittent-spiking. Inflammation and exudation of the pharynx and conjunctivae are common. In severe cases, hypotension or shock, hemorrhage, pleural

effusion, encephalopathy, and edema of the face and neck are frequent. Albuminuria and hemoconcentration are commonly observed. Early lymphopenia may be followed by late neutrophilia. Platelet function is abnormal but, platelet counts are only moderately depressed. The disease is more severe in pregnant patients with fetal loss occurring in > 80% of cases. Transient alopecia and ataxia may occur during convalescence, and 8th cranial nerve deafness in 25% of all patients. Only half of those patients suffering from 8th cranial nerve deafness will recover function after 1 – 3 months. AST levels > 150 and high viremia indicate poor prognosis. The case fatality rate among hospitalized cases is about 15%. Inapparent infections diagnosed through serological methods are common in endemic areas.

HOW IS LASSA FEVER DIAGNOSED?

Diagnosis is can be made through IgM antibody capture, antigen detection through ELISA or PCR, viral isolation from blood, urine or throat washings, and IgG seroconversion by ELISA or IFA. Laboratory specimens should be labeled as a biohazard and must be handled with extreme care. BL-4 biosafety containment should be used if available. Heating serum to 60°C (140°F) for one hour will largely inactivate the virus and the serum can then be used to measure heat stable substances such as creatin, BUN or electrolytes.

WHAT IS THE TREATMENT FOR LASSA FEVER?

Patients should be quartered under strict barrier isolation in a hospital room away from traffic patterns. Nosocomial infections have been reported. So strict procedures for isolation of body fluids and excreta should be implemented. Respiratory protection is desired. Male patients should refrain from sexual activity until the semen has been shown to be free of virus.

Lassa Fever is a reportable condition under the Army Medical Surveillance System. Contact your local Preventive Medicine Activity to report any suspected cases.

Ribavirin (Virazole®) has been found most effective when administered within the first 6 days of the illness. It should be administered by IV, 30 mg/kg initially followed by 15 mg/kg every 6 hours for 4 days, and then 8 mg/kg every 8 hours for an additional 6 days.

WHAT HOSPITAL PRECAUTIONS ARE REQUIRED?

The patient's excreta, sputum, blood and all objects that the patient has been in contact with, including laboratory equipment used to test the patient's samples, should be disinfected with a 0.5% sodium hypochlorite solution or 0.5% phenol with detergent, and where possible, appropriate heating methods such as, incineration, autoclaving or boiling. Laboratory tests should be performed in special bio-containment facilities. If no bio-containment facilities are available, tests should be kept to a minimum and specimens handled experienced laboratory technicians using all available biosafety precautions. Though disinfection with 0.5% sodium hypochlorite or phenolic compounds is adequate, formaldehyde fumigation can be considered.

HOW IS LASSA FEVER PREVENTED?

Eliminating rodent habitat around work and living areas is the best way to reduce exposure to the virus. Keep areas free from trash, litter, junk or debris, which attract rodents looking for food, cover, and protection from predators. Keep all food waste and garbage in rodent-proof, covered containers.

RODENT CONTROL

Prior to beginning a major rodent control operation, determine if an ectoparasite problem exists. Killing the rodents and causing the fleas or ticks to move on to human hosts will create an even bigger problem. For small numbers of rodents this is not necessary. Bait snap traps with peanut butter and place the traps in areas that the rodents are known to frequent. Once a rodent is trapped, use the disposal and cleanup guidelines listed below.

CLEANUP

Always spray disinfectant on the dead rodent, trap, droppings and surrounding area where the rodent

has been. Liquid bleach (3 tablespoons per gallon of water), or any other household disinfectant can be used to kill the virus. Using rubber gloves or a plastic bag over the hand, carefully remove the rodent, place it in a plastic bag and seal the bag. Place this bag in another plastic bag and seal again. Dispose of the dead rodent by either burning or burying in a two to three foot deep hole. Bury deep enough that stray animals will not dig it up.

AREA DISINFECTION

Always wear rubber gloves or plastic bags on hands during cleanup of contaminated areas. Thoroughly soak snap traps in disinfectant. Rinse, dry, and reuse the trap. When cleaning floors, minimize stirring up dust (which may potentially carry the virus as air-borne particles) by first spraying the area with disinfectant, then mopping the floor with a soap and disinfectant solution. Is using disposable gloves, first disinfect, then discard the gloves. Wash hands thoroughly with soap and hot water.