

RABIES

Disease Overview

Human case of rabies. Rabies is a rare acute viral infection causing progressive viral encephalomyelitis that is nearly always fatal. Rabies occurs worldwide, although most human deaths occur in Asia and Africa. Encourage pre exposure vaccination for persons at occupation risk and travelers.

Human rabies occurs very rarely in Canada, but if not prevented, is almost always fatal once symptoms develop. Recent cases have been due to bat exposures. Post-exposure prophylaxis is highly effective in preventing rabies. Rabies prophylaxis (wound cleansing, rabies immune globulin and rabies vaccine) must be considered in every incident in which potential exposures to rabies virus has occurred. Refer to current Canadian Immunization Guidelines.

Symptoms

Rabies is an acute encephalomyelitis that almost always progresses to coma or death within 10 days after the first symptom. Early symptoms of rabies in people may include headache, malaise, fever and fatigue. There may be discomfort or pain at the exposure site (i.e., the site where the person was bitten). Symptoms progress quickly as the central nervous system is attacked, and the illness generally presents in one of two ways. The more common, agitated (furious) form presents with the classic symptoms of hydrophobia and aerophobia (severe laryngeal or diaphragmatic spasms and a sensation of choking when attempting to drink or when air is blown in the face) with a rapidly progressing encephalitis and invariably death. The paralytic form of the disease manifests in progressive flaccid paralysis, has a more protracted course, and is more difficult to diagnose.

Reservoir

Animal reservoirs maintain the virus in nature. Reservoirs in Canada include foxes, skunks, raccoons, and bats.

Mode of Transmission

Rabies is spread when virus in the saliva of an infected animal enters through a bite, scratch, broken skin, the mucous membranes or the respiratory tract. The virus then gains access to the central nervous system through peripheral nerves. Bites from an infected animal are the main route of exposure.

Transmission has rarely occurred through transplantation of organs from undiagnosed infected persons.

Incubation Period

The incubation period in humans is usually 3 to 8 weeks, although it may vary from days to years.

Period of Communicability

Transmission of rabies from a patient to contacts is theoretical.

Risk Factors

Increased risk for acquiring/severe illness:

- Occupational risk includes people who work in close contact with animals (eg veterinarians and wildlife workers), and laboratory workers who handle the rabies virus are at higher risk for exposure to rabies.
- Travelers to areas where canine rabies is endemic.

- Individuals who engage in activities which place them in close contact with potentially rabid animals like bats, foxes, skunks and raccoons, in areas where rabies is found, may also be considered at higher risk of rabies exposure.
- Children are considered at higher risk for exposure to rabies because they often play with animals and are less likely to report bites or scratches. Additionally, bites in children are usually higher on the trunk or face, and are often more severe.

Surveillance Case Definition

Confirmed case of rabies is clinical evidence of illness with laboratory confirmation of infection:

- detection of viral antigen in an appropriate clinical specimen, preferably the brain or the nerves surrounding hair follicles in the nape of the neck, by immunofluorescence

OR

- isolation of rabies virus from saliva, cerebrospinal fluid (CSF), or central nervous system tissue using cell culture or laboratory animal

OR

- detection of rabies virus RNA in an appropriate clinical specimen

A probable case of rabies is clinical evidence of illness with laboratory evidence:

- demonstration of rabies-neutralizing antibody titre ≥ 5 (complete neutralization) in the serum or CSF or an unvaccinated person

Negative results do not rule out rabies infection because viral material may not be detectable (e.g. early in infection). CSF frequently remains negative. The presence of rabies-neutralizing antibodies can indicate an exposure to rabies virus antigen or passive immunization. Negative serologic results do not rule out a rabies infection because antibody levels may not surpass the detection threshold (0.5 IU) and seroconversion is usually very late.

Diagnosis and Laboratory Guidelines

Human rabies testing is done out of province.

Reporting

Per Policy 2.2 Disease and Event notification to OCMOH and Disease and Event Reporting section

- CD Urgent Notification. For all confirmed cases a CD Urgent Notification form should be completed and sent to OCMOH.
- Routine surveillance (RDSS) for all confirmed cases.

Case Management

Education

Per contact management

Investigation

Investigate source of exposure and identify others that may have been exposed to the source. Consider travel to endemic areas.

Exclusion/Social Distancing

Hospitalization and appropriate infection control practices.

Treatment

Rabies is invariably fatal. Consult current treatment guidelines.

Immunization

Not applicable.

Contact Management

Education

Contacts or relevant caregiver should be informed about:

- Nature of infection, length of communicable period and mode of transmission
- Rabies post exposure prophylaxis

Investigation

Transmission of rabies from a patient to attending personnel or contacts is theoretical; attendants should wear appropriate personal protective equipment (per routine practices including a point of care risk assessment prior to every interaction).

If others that may have been exposed to the source are identified, evaluate risk and need for post-exposure prophylaxis.

Exclusion/Social Distancing

Not applicable

Prophylaxis

Contacts who receive a bite or have an open wound or mucous membrane exposure to the patient's saliva should receive specific post exposure prophylaxis. Refer to current Canadian Immunization Guidelines.

Outbreak Management

Activate the local outbreak plan when an outbreak is declared.