Kunjin Virus

Last updated: 16 September 2016

Public health priority: Urgent
PHU response time: Respond to confirmed cases within a day of notification
Enter confirmed cases on NCIMS within one working day
Case management: Determine possible exposures
Contact management: Nil

1. Reason for surveillance

- To identify and control cases of disease
- To monitor the epidemiology and so inform the development of better prevention and control strategies.

2. Case definition

A confirmed case requires laboratory definitive evidence **and** clinical evidence.

Laboratory definitive evidence

- Isolation of Kunjin virus, **or**
- Detection of Kunjin virus by nucleic acid testing, **or**
- IgG seroconversion or a significant increase in antibody level or a fourfold or greater rise in titre to Kunjin virus, **or**
- Detection of Kunjin virus-specific IgM in cerebrospinal fluid, **or**
- Detection of Kunjin virus-specific IgM in serum in the absence of IgM to Murray Valley encephalitis, Japanese encephalitis, dengue or Zika viruses. This is only accepted as laboratory evidence for encephalitic illnesses.

Confirmation of laboratory result by a second arbovirus reference laboratory is required if the case occurs in areas of Australia not known to have established enzootic/endemic activity or regular epidemic activity.

Clinical evidence
Non-encephalitic illness
Acute febrile illness with headache, myalgia and/or rash, OR

Encephalitic disease
Acute febrile meningoencephalitis characterised by one or more of the following:

- Focal neurological disease or clearly impaired level of consciousness
- An abnormal CT or MRI scan or EEG
- Presence of pleocytosis in the CSF

Asymptomatic disease
Case detected as part of a serosurvey should not be notified.

3. Notification criteria and procedure

Kunjin virus cases are to be notified by laboratories on diagnosis (ideal reporting by telephone within 1 hour of diagnosis). Only confirmed cases should be entered onto NCIMS.

4. The diseases

Infectious agent
Kunjin is one of the arboviruses (arthropod borne viruses known to be pathogenic for humans. The kunjin virus is a member of the genus *Flavivirus*, in the family *Flaviviridae* (Dengue fever, Japanese encephalitis, Murray Valley Encephalitis, Kokobera, Stratford, Alfuy and Edge Hill are also *flaviviruses*). It is very closely related to the West Nile virus (WNV).

Mode of transmission
Kunjin virus is transmitted by the bite of an infected mosquito, primarily *Culex* species. There is no evidence of direct person-to-person spread.

Timeline
The incubation period is unknown but thought to range from 5 to 26 days.

Clinical manifestations
Symptoms are variable, but typically include sudden onset of fever, anorexia and headache. Vomiting, nausea, diarrhoea, muscle aches and dizziness may also occur. Neurological dysfunction may be experienced with photophobia, lethargy, irritability, drowsiness, neck stiffness, confusion, ataxia, aphasia, intention tremor, convulsions, coma and death. Encephalitis following infection with Kunjin is probably rare.

Sentinel chickens in the NSW arbovirus surveillance program occasionally seroconvert to Kunjin in the western part of the State, with the most recent seroconversions in 2011. Cases of human infection with Kunjin are very rare, although a case was reported in 2012.

5. Managing single notifications

Response times

Investigation
On same day of notification of a confirmed case follow-up investigation and notify the CDB of the case details.

Data entry
Within one working day of notification enter confirmed cases on NCIMS. Cases of WNV acquired overseas should be entered as Kunjin - overseas acquired with travel history included.

Response procedure
The response to a notification will normally be carried out in collaboration with the case's health carers. But regardless of who does the follow-up, PHU staff should ensure that action has been taken to:

- Confirm the onset date and symptoms of the illness
- Confirm results of relevant pathology tests, or recommend the tests be done (encourage the managing doctor to take convalescent sera to confirm the diagnosis)
- Ensure confirmation by a second test if the case has been acquired in a previously unaffected area
- Find out if the case or relevant care-giver has been told what the diagnosis is before interviewing them
- Seek the doctor's permission to contact the case or relevant care-giver
- Review case management
- Identify likely source of infection.

Case management

Investigation and treatment
Supportive treatment only.

Education
The case or relevant care-giver should be informed about the nature of the infection and the mode of transmission.

Exposure investigation
The case should be asked to recall if, in the incubation period, he or she had:

- Been bitten by mosquitoes, **or**
- Visited regions where the Kunjin virus is endemic, **or**
- Participated in recreational or other activities involving exposure to bushland or other mosquito habitat (as in, for example, gardening, bushwalking and picnicking).

Isolation and restriction
Infected people should be protected from further mosquito exposure (staying indoors in areas with screens or under a mosquito net) during the first few days of the illness, so they do not contribute to the transmission cycle.

Environmental evaluation
Disease occurrence may indicate the need for extraordinary mosquito investigation and control measures and other environmental management strategies and/or health information for the community. This should be discussed with NSW Health Department's Centre for Health Protection.

Contact management

Identification of contacts
Potentially exposed people are those who may have been exposed to the same source as the case. However, active searching for these people is not usually indicated.

Treatment
Passive immunisation
None

Active immunisation
None.

Antibiotic prophylaxis
None

Education
Educate the public living in or travelling to endemic areas to minimise exposure to mosquito bites. Information should indicate geographical location of habitats, and periods of maximum mosquito activity and also refer to protective clothing, appropriate repellents and methods of reducing mosquitoes in the home. Fact sheets are available on the NSW Health web site (http://www.health.nsw.gov.au/Infectious/factsheets/Pages/default.aspx).