Meningoencephalitis – primary amoebic

Epidemiology in New Zealand

Primary meningo-encephalitis is a rare condition. It was first recognised in New Zealand in 1968 among people who had been swimming in untreated thermal pools in the central North Island. There were eight fatal cases between 1968 and 1978, and a further death was reported in 2000.

More detailed epidemiological information is available on the Institute of Environmental Science and Research (ESR) surveillance website at www.surv.esr.cri.nz

Case definition

Clinical description

Symptoms may begin with a change in taste or smell, followed by headache, nausea, vomiting, confusion, fever, stiff neck and mental status changes. The infection typically affects the olfactory bulb and grey matter of the frontal, temporal and cerebellar lobes and usually runs a rapid course with death within 6 days of onset of symptoms.

Especially consider if not responding to treatment for bacterial causes of infection and there is a history of exposure to geothermal water.

Laboratory test for diagnosis

Laboratory confirmation requires demonstration in cerebrospinal fluid of the causative organism – usually *Naegleria fowleri*.

Case classification

- **Under investigation**: A case that has been notified, but information is not yet available to classify it as probable or confirmed.
- **Probable**: Clinically compatible illness with history of immersion in thermal pool.
- **Confirmed**: Compatible illness that is laboratory confirmed.
- **Not a case**: A case that has been investigated and subsequently found not to meet the case definition.
Spread of infection

Incubation period
Three to seven days

Mode of transmission
Naegleria infection can be acquired by exposure of the nasal passages (by diving or swimming) to contaminated (usually warm) fresh or inadequately treated water.

Period of communicability
No person-to-person transmission.

Notification procedure
Attending medical practitioners or laboratories must immediately notify the local medical officer of health of suspected cases. Notification should not await confirmation.

Management of case

Investigation
Obtain history of submersion in thermal water. Ensure laboratory confirmation has been attempted.

Restriction
Nil.

Counselling
Advise the case and their caregivers of the nature of the infection and its mode of transmission.

Treatment
The case should be under the care of an infectious diseases physician.

Management of contacts

Definition
People who have swum in the same pool as the case within the last week.
Investigation, restriction and prophylaxis
Nil.

Counselling
Advise all contacts of the incubation period and common symptoms of meningoencephalitis. Encourage them to seek early medical attention if symptoms develop.

Other control measures

Identification of source
Identify pools where the case swam and, where practical and appropriate, advise against further recreational use. Liaise with local territorial authority staff to investigate potential sources of infection; see ‘Reporting’ below.

Control at source
Swimming pools containing residual-free chlorine of 1–2 ppm are considered safe. All pools should comply with the New Zealand Pool Water Quality Standard (5826: 2000). An additional means of minimising risk is to use a heat exchanger to heat non-geothermal water.

Health education
Consider a media release and direct communication with local schools and health professionals to encourage prompt reporting of symptoms in those who have used the implicated pool. In communications with doctors, include recommendations regarding diagnosis.

Advise the public of the danger of immersing head, especially the nose, in untreated thermal pools.

Reporting
Ensure complete case information is entered into EpiSurv.

On receiving a notification, medical officers of health should immediately notify the Ministry of Health Communicable Diseases Team.

The Ministry of Health will notify appropriate staff in the Ministry for Primary Industries so that further investigation of the source can be undertaken.