JAPANESE ENCEPHALITIS

WHAT IS JAPANESE ENCEPHALITIS?

Japanese encephalitis is a mosquito-borne viral disease that occurs in rural regions of Asia and the Pacific region, although through increased urbanisation, cases are being reported more often in peri-urban and urban areas. It belongs to the flavivirus family of viruses, the genus responsible for infections such as yellow fever, dengue fever and Zika virus. In Australia, flaviviruses are the cause of Murray Valley encephalitis and Kunjin virus, among others.

Endemic regions are most often those where rice is cultivated using flooding irrigation or in swampy areas, however seasonal rainfall and high temperatures play a part in differing patterns of risk within some countries. The cycle of transmission for JE involves the virus’ hosts (wading birds and pigs) and the mosquito that feeds on them (Culex species which feeds at night), becoming infected and transmitting the virus between the hosts and occasionally to humans. Humans are considered dead-end virus hosts as mosquitoes are unlikely to become infected through feeding on the low levels of virus circulating during an infection (unlike pigs which are known as virus amplifiers).

WHAT ARE THE SYMPTOMS?

Only 1 in 250 infections among vulnerable individuals in endemic areas leads to symptoms. The disease begins as a flu-like illness with headache, fever and gastrointestinal symptoms; confusion and disturbances in behaviour may also occur at this early stage. The illness can in some cases progress to a serious infection of the brain that can prove fatal in 5-30% of cases. Another one third of cases survive with serious neurological effects, such as paralysis, and the remaining third will recover without further problems.

The elderly and pregnant women are at highest risk of developing symptomatic infections, while children under the age of 10 years with severe disease are more likely to die or have permanent disabilities if they survive.

WHERE IS IT FOUND?

Japanese encephalitis is found in many parts of Asia, the Indian subcontinent, Southeast Asia and China, however the virus, its reservoirs/hosts and vectors have become more widespread, with cases also occurring in Indonesia, Torres Strait, Papua New Guinea and in the past, one case in North QLD.

While JE infections are more commonly found in rural areas around rice paddies where pigs, wading birds and humans live close together, they can occur in or near many Asian cities. The occurrence has greatly diminished, or even disappeared, in some areas such as Singapore, Japan and Korea due to urbanisation and the use of vaccines, however in other areas the incidence is increasing due to deforestation, population growth, the spread of agricultural irrigation and global warming.

Transmission occurs in the northern regions of China, Siberia, Korea and Japan in the warmer months of May to October; further south the peak season is from March to October. In some tropical areas of Southeast Asia and India, transmission depends on the monsoonal rain and bird migration patterns, whereas in areas where there are abundant pigs, rice paddies and birds, transmission can be year-round.

RISK TO TRAVELLERS

The risk to short-term travellers and people who confine their travel to urban centres and use appropriate insect bite prevention measures is very low. Expatriates, travellers living for prolonged periods (over 30 days) in rural, particularly agricultural areas and repeat travellers to locations where Japanese encephalitis is endemic or epidemic are at greater risk. Travellers with extensive unprotected outdoor exposure in rural areas, particularly during the evening and at night -
especially those engaging in activities such as bicycling, camping or engaged in certain occupational activities in rural area - may be at high risk, even if their trip is brief.

Travellers are advised to stay in screened or air-conditioned rooms, or to use bed nets impregnated with a contact insecticide such as Permethrin when such accommodation is unavailable. Bite avoidance measures such as the use of insecticide, repellents and protective clothing to avoid mosquito bites should be employed.

HOW IS JAPANESE ENCEPHALITIS TREATED?
There is no cure for Japanese encephalitis; treatment is focused on relieving severe clinical signs and supporting the patient to overcome the infection.

WHAT IS JAPANESE ENCEPHALITIS VACCINATION?
Type: Injectable

- Attenuated live viral vaccine (Imojev)
- Inactivated virus vaccine (JEspect)

Contraindications: Should not be administered to individuals who have previously experienced a serious reaction to this vaccine or who are known to be hypersensitive to any of the vaccine components. Imojev should not be administered to anyone who is unable to receive a live vaccine.

SCHEDULE

Imojev: Intramuscular injection

- Children <9 months to <18 years, one dose is given on day 0. Currently a booster dose can be given after 1 to 2 years, if at continued risk of infection.
- Adults over 18 years of age, a single dose. Boosters not required.

JEspect:

- Children aged <3 years and adults have 2 doses 28 days apart

JEspect can be used in children aged <2 months to <18 years, but only in circumstances where an alternative is not available (e.g. in infants aged <2 months to <9 months) or is contraindicated. In these cases the schedule for the <2 months to <3 years age group is to receive 2 doses (of 0.25 ml) 28 days apart. Data is lacking on boosters for infants and children under 18 years, so for continuing risk of JE infection, discuss with the medical practitioner.

A booster of JEspect is recommended for adults aged over 18 years who are at continued risk of exposure to the JE virus 1–2 years after primary dose.

SCHEDULE (ACCELERATED)

Adults aged 18 years and over can receive 2 doses of JEspect, 7 days apart if they are at imminent risk of exposure to JE virus.

LEVEL OF PROTECTION

Imojev:

- 94% after 14 days

JEspect:
• 96% after 2 doses (28 days apart)

POSSIBLE SIDE EFFECTS

Imojev: Approximately 40-50% of subjects reported one or more of the following adverse reactions, most of which resolved within 3 days:

- Generally mild but may include:
- Gastrointestinal upset, Nausea, vomiting and/or diarrhoea, abdominal cramps and pain, Headache, muscular and/or joint pain,
- Fatigue, feeling unwell, hot, chills and dizziness.
- Throat pain, shortness of breath, runny nose, cough, wheezing, nasal congestion, rash.
- As with all vaccines, there is a small risk of an allergic reaction.

JEspect: Approximately 40% of subjects experience adverse reactions and they usually occur in the first 3 days following vaccination. Side effects are usually mild and only in the first few days; they may include:

- Pain, tenderness or swelling at injection site,
- headaches, muscle aches and pains,
- flu-like illness, fatigue.
- Fever is more common in children.

References:

More information on Japanese Encephalitis is available during your pre-travel consultation with Travelvax. Call 1300 360 164 for the location of the clinic nearest to you.