

JAPANESE ENCEPHALITIS

1 General

Japanese Encephalitis is a serious viral disease in Asia. It presents as an influenza-like condition that after a few days can dramatically lead to cerebral inflammation (diminished consciousness, paralysis, coma). The ratio of symptomatic to asymptomatic infections varies between 1 in 50 and to 1 in 1000 infections. The mortality rate among the symptomatic cases with signs of inflammation of the brain amounts to approximately 25 %. If a patient survives the illness, there is a 30% chance of neurological and/or psychiatric residual damage. No antiviral treatment exists.

The infection is transmitted exclusively by *Culex mosquitoes* within the *Culex* genus. The transmitting mosquitoes bite from dusk until sunrise. In areas where Japanese encephalitis is endemic only 1 to 3% of the *Culex* mosquitoes are infectious. Pigs and various bird species form the reservoir of the virus.

The disease is endemic in the **rural** areas of **southern and Southeast Asia** (from India to Japan), especially in parts of Bangladesh, Burma (Myanmar), Brunei, Cambodia, China, India, Indonesia (Java, Bali, Irian Yaja and Borneo, but not on the other islands), Hong Kong, Japan, Thailand, Vietnam, Nepal (in the Terai, the lowland areas below 765 m), the Philippines, Korea, Laos, Singapore, Sri Lanka (only on the extreme northern tip of the island), Malaysia and a small region of Pakistan. The virus recently crossed the strait of Torres between Papua New Guinea and the extreme north of Queensland (Australia).

The infection occurs seasonally in most areas, mainly from April-May to October-December. The incidence reaches its peak in the temperate climate zones around the end of the summer and the beginning of autumn; in the tropical climate zones at the beginning of the monsoon. However, in a number of areas transmission is possible throughout the entire year, particularly in the three archipelagos (Philippines, Indonesia, Malaysia), but also elsewhere, depending on local ecological factors. The disease occurs especially in the rural areas, where humans and pigs live in close proximity, and particularly in areas where there are rice paddies, as these make ideal breeding grounds for the mosquitoes. Infections can very occasionally occur on the outskirts of the big towns. In several endemic countries the number of cases has been reduced by a good vaccination policy and vector control.

In general terms, the risk for travellers to the Far East is extremely low (less than 1 in

1,000,000 tourists who have been travelling for 1 month). Depending on the season, the destination, purpose and conditions of travel, the risk can increase to up to 1 in 5,000 per month.

2 Prevention

Vaccination

A killed vaccine (obtained from mouse brain cells) of Japanese origin is available and can be administered by the Institute of Tropical Medicine. Supplies of this vaccine are rather limited. The vaccine is as yet used very little.

Adults: the vaccination schedule consists of 3 subcutaneous injections (1 ml) administered over a period of 30 days (day 0-7-30), where the last dose is administered not later than 10 days before departure. If there is not sufficient time a shortened schedule can be used: days 0-7-14. A single dose does not give any noticeable protection. Two doses provide a better immunity, but this amounts to no more than 80 % and is of short duration (6-12 months). To obtain complete and prolonged immunity it is therefore necessary to administer all 3 injections. It is advisable to repeat the vaccination every 3 years.

A half dose should be administered to **children from 1 to 3 years old**. We have no information on the use of this vaccine in children under one year old.

Allergic side effects lasting from a few minutes up to 2 weeks after the injection can occur in rare cases, with serious consequences in a few exceptional cases (of the order of 1/10,000). As these side effects can occur anything up to 10 days after the injection, the last dose should **always** be administered more than 10 days before departure.

Vaccination is not advised for ordinary tourists nor business travellers. Some controversy exists over the correct indication for other categories of travellers. Most specialists agree that vaccination is generally only recommended for individuals travelling for at least 4 weeks through rural areas where Japanese Encephalitis is endemic. Vaccination should be discussed in every case with people who are going to live in rural areas where the disease is endemic (e.g. development workers in Vietnam, Cambodia and Laos). It is therefore best to first consult the experts concerning the indication. For example, in the last few years there have been reports of an increase in cases of Japanese Encephalitis in the Nepalese Terai and even in the Katmandu valley. Vaccination has been advised by some authorities for a stay between August and October.

Protective measures against mosquito bites, such as for malaria, are an effective alternative