Japanese encephalitis

Japanese encephalitis represents the most prevalent preventable cause of mosquito-borne encephalitis across Asia, Australia, and the western Pacific region. The virus is transmitted through the bites of Culex species mosquitoes. This transmission is most frequently observed in agricultural settings, including farms and rice fields, although it can also take place in urban environments under specific circumstances. While most infections remain asymptomatic, individuals who do exhibit symptoms of encephalitis experience considerable morbidity and mortality.[1]

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The Japanese encephalitis virus binds to the membranes of host cells, initially replicating at the location of the bite and in adjacent lymph nodes.[4] Following this, viremia occurs; however, in the majority of instances, the virus is eliminated before it can penetrate the central nervous system, leading to subclinical manifestations. Should the virus reach the brain through the bloodstream and breach the blood-brain barrier, neuroinvasive disease can ensue. The Japanese encephalitis virus exhibits both direct neurotoxic properties and the ability to influence the development of neural stem cells.

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