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### Chikungunya: A Brief Review on the Vector-borne Infection

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#### Abstract

Chikungunya infection is caused by the chikungunya virus. It is characterized by sudden onset of fever two to four days post exposure and joint aches. Mortality is less than 1 in 1,000. Mostly the elderly are prone to have severe complications.

**Key words:** Chikungunya, Mosquito, Vector-borne, Virus

#### Introduction

Humans acquire the chikungunya virus by two species of mosquito *A. albopictus* and *A. aegypti*.<sup>[1-2]</sup> Animals like monkeys, birds, cattle, and rodents act as carrier of the virus.<sup>[3]</sup>

Prevention can be achieved by mosquito control and avoiding vector bites.<sup>[10]</sup> This may be partly achieved with the use of mosquito nets. Only supportive therapy is suggested for the patient to reduce fever and joint pain.<sup>[4]</sup>

#### Clinical signs and symptoms

The incubation period of the chikungunya virus ranges from one to twelve days.<sup>[5]</sup> The disease initiates from an asymptomatic course followed by the development of characteristic symptoms include sudden onset with high fever, joint pain, and rash<sup>[8]</sup>. Other symptoms include headache, fatigue, digestive complaints, and conjunctivitis.<sup>[2]</sup>

The disease is characterized by a sudden high fever that lasts from a few days to a week. The fever may sometimes be biphasic lasting for several days. Fever occurs with the onset of viremia, and the level of virus in the blood correlates with the intensity of symptoms in the acute phase.<sup>[9]</sup>

Fever is followed by joint pain and stiffness which usually lasts for many weeks or months. Rash occurs on the skin in 40-50% of cases.<sup>[10]</sup> Symptoms also include Digestive problems, abdominal pain, nausea, vomiting or diarrhea<sup>[10]</sup>

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Rarely, neurological disorders are also evident in chikungunya infection, including Guillain-Barré syndrome, palsies, meningoencephalitis, flaccid paralysis and neuropathy.<sup>[2]</sup>

#### Mode of transmission

Chikungunya is generally transmitted from mosquitoes to humans. Vertical transmission also occurs from mother to child during pregnancy or at birth.

Chikungunya spreads through bites of *A. aegypti* including *A. albopictus*.<sup>[2]</sup>

#### Clinical and laboratory diagnosis

Chikungunya is diagnosed on the basis of clinical signs, epidemiological surveillance and laboratory diagnostic tests. Laboratory diagnosis can be accomplished through viral isolation and serological diagnosis tests which include ELISA and RT-PCR using nested primer pairs is used to amplify several chikungunya-specific genes from whole blood.<sup>[6]</sup>

Differential diagnosis should be done with o'nyong'nyong virus and Semliki Forest virus.<sup>[7]</sup>

#### Conclusion

There is no commercially approved vaccine available against the disease. So, the most effective means is mosquito control. It can be brought about by the elimination of stagnant water where mosquitoes lay eggs and develop as larva. Use of insecticides or biological control agents is also advocated.<sup>[14]</sup> Insect repellants such as DEET, icaridin or IR3535 can also be used.

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