

Chikungunya in Brazil: an emerging challenge

Chikungunya no Brasil: um desafio emergente

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CONTEXT

For the first time in history it was documented an indigenous transmission of Chikungunya fever in the Americas in the Caribbean in 2013. Then it has been confirmed in Oiapoque the occurrence in Brazil. By October 2014, there were 828 cases in the country, only 39 pointed as coming from abroad. Interestingly, there seems to be two different viral introductions in the Americas, as the viral genotype was isolated in Oiapoque and the Caribbean is not the same as the analyzed in Bahia.

HISTORY

The Chikungunya (CHIKV) is an RNA virus of the family *Togaviridae* of the *Alphavirus* genus, first described in 1950 in the region that today corresponds to Tanzania during an outbreak initially attributed to dengue virus. After the first descriptions, two distinct patterns of transmission have been described: a wild and peri-urban Africa (*Aedes spp*) and other urban Asia (*A. aegypti*). Besides that, three different genotypes circulating in parts of the world (Central Africa, South and East – ECSA, West Africa – WA and Asia) were reported. Until then, few serious clinical cases and no deaths were associated with infections by this virus¹.

Since 2005, small mutations in the E1 protein of the viral envelope of the ECSA variant allowed better viral adaptation to a new cosmopolitan vector (*Aedes albopictus*). This contributed to a major expansion of the disease to the Indian Ocean, and later to Asia and Europe. In 2005, the virus reached the *Réunion* Island after an outbreak in Kenya. In this epidemic that has reached about 40% of the population, many serious cases have been documented and confirmed in the laboratory, with an estimated mortality of 1/1,000 cases².

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CHARACTERISTICS

The Chikungunya is characterized by fever associated with severe and debilitating joint pain, headache and myalgia. Although it has symptoms similar to dengue, draws attention the polyarthritis/symmetric arthralgia (mainly wrists, ankles and elbows), which often improves after 10 days, but may last for months after the fever. The proportion of chronic cases varied in different epidemics in France, South Africa and islands in the Indian Ocean, from 4 to 63%. The name Chikungunya means “that which bends” in the Makonde language spoken in parts of East Africa, because of the antalgic position that patients acquired during the period of illness².

While severe conditions are not common and do not occur shock or major bleeding as in the dengue fever, neurological manifestations (encephalitis, meningoencephalitis, myelitis, Guillain Barré syndrome), bullous skin and myocarditis can bring gravity to cases; especially in infants and elderly².

CHIKUNGUNYA AND DENGUE

When comparing with dengue, Chikungunya has characteristics that amplify the spread of the disease and increase the likelihood of major and explosive epidemics. Among these features are the largest proportion of symptomatic patients (> 90%), intrinsic shorter incubation period (from 2 to 7 days), longer period of viremia (2 before and 10 after the fever) and a shorter period of extrinsic incubation (in mosquito). Viral replication in *Aedes albopictus* beyond *A. aegypti* increases the geographic extent of the regions with viral circulation potential.

There is also the risk of establishing an Chikungunya enzootic cycle of monkey-mosquito in Brazil, making it impossible to eradicate the disease in the country.

CHALLENGE

A major challenge is presented to the country. The inclusion of the disease among the differentials clinical diagnoses of dengue-like syndrome implies intense disclosure of the problem among health teams throughout Brazil. The occurrence of simultaneous epidemics difficult clinical management due to the peculiarities of dengue and Chikungunya fever.

The absence of vaccine and specific medication leaves to the vectors control teams the task of preventing transmission. The Ministry of Health also points the early identification of cases in harmless area, expansion of diagnostic and the training of health teams. It is for the scientific community and to health services to monitor the

epidemiological situation, identify patterns of transmission in Brazil, the impact of the disease and, especially, to contribute to the proposition coping measures of this great emerging challenge.

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