

EDITORIAL

Chikungunya Virus (CHIKV): The Novel Challenge to the Healthcare System

PIREH¹, IFFAT JAMAL¹, SYED ZULFIQUAR ALI SHAH², MUQADAS FATIMA¹, FARHEEN QADEER², MUSHAHID ALI²

¹Liaquat University Hospital (LUH) Hyderabad / Jamshoro

²Liaquat University of Medical and Health Sciences (LUMHS) Jamshoro

Correspondence to Dr. Syed Zulfiqar Ali Shah, Email: zulfikar229@hotmail.com

Chikungunya (CHIKV) is a viral illness transmitted by mosquitoes, characterized by fever and intense arthralgia. It is induced by a ribonucleic acid (RNA) virus classified within the alphavirus genus of the *Togaviridae* family¹. The word "chikungunya" originates from a phrase in the Kimakonde phrases of southern the Republic of Tanzania, indicating "to become contorted," which characterizes the stooped posture of those experiencing pain in the joints (arthralgia)². Two separate spread phases have been painstakingly recorded: enzootic and urban. In Africa, an enzootic lifecycle takes place in forest environment wherein arboreal bugs, mostly *Aedes* spp., act as vectors³. Evidence implies that nonhuman primates operate as the primary stores and amplifiers during the enzootic stage, as indicated by their increased seroprevalence rates, reported incidences of viral illnesses in natural habitats, and viremia levels following experimental transmission⁴. It may set in motion a protracted urban transmission cycle that is totally reliant on *Aedes albopictus* or *Aegypti* and amplifying hosts that are humans. Due in large part to the proximity of these vectors to human populations, this epidemic/enzootic cycle increases the frequency with which humans come into contact with mosquito spread⁵.

The virus that causes Chikungunya was detected in rats in Pakistan in as early as 1983. During the 2011 dengue epidemic, many cases of chikungunya were also recorded in Lahore. The pandemic allegedly got started in the second week of November 2016. Healthcare authorities in Karachi predict that the total number of patients requiring assistance will surpass 30,000 while Pakistan, have confirmed over four thousand cases using diagnostic RT-PCR⁶. The epidemic is intricately linked to the humid heat and deplorable hygiene standards of the town. Karachi saw a temperate winter, with a standard low temperature of 15°C recorded in December. Chikungunya bugs flourish significantly in temperate conditions. In addition, Karachi's sanitation system is abysmal. Across the town, open drains and putrid marshes provide as ideal breeding grounds for flies^{7,8}.

Four separate CHIKV families have been found, each exhibiting unique genotypic and antigenic traits. The pathophysiology of infection with CHIKV in humans remains inadequately elucidated; nevertheless, recent epidemics have contributed to understanding the tissues and organs implicated in viral replication⁹. The virus infects several human organs when it enters the bloodstream, including as the brain, muscles, joints, and liver. Rapid seroconversion and enhanced antibody responses in CHIKV infected patients are indicated by the detection of IgG antibodies during the first week following infection¹⁰. Particular IgM persists for approximately three to four months from the commencement of the illness, but IgG remains for over six months¹¹. Chikungunya illness is marked by a sudden onset of fever, polyarthralgia, and a rash that is maculopapular. The period of incubation extends from two to four days (range from one to twelve days), with asymptomatic infections occurring in between five and fifteen percent of cases¹². Although biological indicators of inflammation, such as the erythrocyte sedimentation rate and C-reactive protein, are markedly raised, imaging scans reveal no abnormalities. The two most common visual symptoms associated with CHIKV infection are iridocyclitis and retinitis, which often proceed in a benign manner and result in full recovery and vision restoration¹³. Joint discomfort might last for a few weeks, months, or years, although the first signs and symptoms usually go away in

two weeks. This clinical characteristic might help distinguish infection with dengue virus from CHIKV. Encephalitis, Encephalopathy, hepatitis, myocarditis and multiorgan failure are some of the symptoms of severe chikungunya¹⁴.

For CHIKV infection, there is currently no antiviral medicine available. After diagnosing and ruling out more dangerous illnesses including dengue, malaria, and bacterial infections, it is suggested to treat symptoms. Patients with pain in the joints and joint stiffness could benefit from a graded physiotherapy regimen during both acute and chronic phases of the condition. Light physical activity often alleviates morning stiffness and discomfort; however intense exercise may intensify symptoms. In the absence of vaccine development, the most viable preventative strategies are individual defense from bites from mosquitoes and vector management. The management of both adults and larval populations of mosquitoes use the same strategy as that for dengue fever and has shown to be quite successful in several nations and contexts. A very successful strategy for reducing CHIKV infection is to regulate mosquito populations. Eliminating breeding places requires regular emptying, sterilization, or pesticide treatment¹⁵. Wearing clothing that covers less skin throughout the day may help defend against diurnal biting vectors. Apply repellents liberally to exposed skin or clothing; following the directions on the package¹⁶. The spread of genetically engineered male mosquitoes into regional populations insures the non-survival of female progeny, since only female mosquitoes need blood post-breeding. The technique has effectively controlled mosquito populations in some regions of Brazil.

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