Letter to the Editor

Rising Co-incidence of Chikungunya and Guillain-Barré Syndrome in Maharashtra, India

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To The Editor,

Chikungunya is a viral illness disease spread by Aedes mosquitoes, which bite during the daytime. This illness has become a growing public health issue in India in 2024, particularly in Maharashtra, which recorded approximately 2,643 chikungunya cases as of September, an increase of 55% from the previous year. Across India, chikungunya cases reached 69,395 by early September, with a projected rise that may exceed past year's total of 200,064 cases.[1,2]

The rise in Chikungunya cases within the state of Maharashtra has been noticed more in urbanized cities, such as Pune, Mumbai, Nagpur, and Kolhapur. Among the reported cases, Nagpur tops the chart with 741 cases while Mumbai comes second with 338 cases, followed by Pune city with 227 cases and Kolhapur with 164 cases. The districts with the most cases are Kolhapur (219), Pune (193), Amravati (156), and Akola (129).[3]

Chikungunya may present symptoms including fever, joint pains, and tiredness attributed to the disease. In recent times however, the virus has been associated with severe complications affecting the nervous[4] system, particularly Guillain-Barré Syndrome (GBS). GBS is a disorder of the autoimmune system characterized by the body's immune system attacking the peripheral nerves and has a range of symptoms from muscle weakness to paralysis. It has been shown in studies that patients recovering from chikungunya are at increased risk of developing GBS but more so for patients with underlying diseases, such as diabetes or heart diseases.

Various factors have been implicated for the surge in chikungunya cases, one of them being warmer climates and increased breeding of mosquitoes in both the towns and the villages, hence making it easier for the virus to spread. Reporting system issues have hindered accurate assessment of chikungunya's burden and related complications, such as GBS. There is always a tendency to underreport where there exists access to only minimal healthcare because such places do not allow for effective early outbreak detection and response measures.

Recent studies have revealed a possible association between chikungunya infection and the occurrence of GBS. Such association is speculative and is related to the defense response called "molecular mimicry." Chikungunya infections trigger a response from the immune system, but it is possible that due to the resemblance of some of the viral particles to the structures of the peripheral nerves, the immune system may destroy some of the nerve cells. This has been reported with other viruses spread by mosquitoes including Zika and could lead to an increased incidence of GBS after chikungunya infection.[1,2]

IMPACT IN MAHARASHTRA

Maharashtra like other parts of the world witnessed epidemics of the disease where hospitals reported many cases of chikungunya-related GBS. In the year 2024 for instance, hospitals in Mumbai noted 30% more incidences of GBS within the same season as outbreaks of chikungunya were reported. The signs and symptoms of GBS include weakness of the muscles, numbness or tingling around the body, and in some cases leading to total paralysis over a period of time. In Pune, health authorities have issued GBS following chikungunya

Access this article online	
Website: themmj.in	Quick Response Code
DOI: 10.15713/ins.mmj.106	

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warnings to the public and urged them to report back any neurological symptoms without delay.[2]

STRATEGIES AND CONCEPTS OF HEALTH PROTECTION

Health departments in the state of Maharashtra have stepped up vector control measures in the face of rising incidences of chikungunya and its complications such as GBS. Towns are also laying focus on awareness strategies enabling the people to understand how to remove the areas where mosquitoes breed, how to protect themselves, and when to go to the health facilities when they have complaints of chikungunya or GBS. The coordination aspect was also given emphasis with regards to disclosing the information within the shortest time for both health and epidemic control purposes.

For those who develop GBS post-chikungunya, early diagnosis and initiation of treatment are imperative. The treatment predominantly consists of immunotherapy, including intravenous immunoglobulin therapy or plasmapheresis, both sorted aimed at suppressing the immune system. Health practitioners advise that all patients with chikungunya should have neurological assessments performed as soon as possible, as this will lead to earlier treatment and thus lessen the severity and length of GBS symptoms although recovery will still take many weeks.

VACCINE RESEARCH AND FUTURE DIRECTIONS

A chikungunya vaccine is still in progress; however, clinical trials show that it might be available soon for endemic regions, such as India. Experts feel that vaccine deployment would be key in mitigating the burden of chikungunya disease and preventing the complications such as GBS that could be resulting from it. With the burden of chikungunya on the rise, correlative research on public health makes a case for the use of combination vaccination, vector control, and early detection of the disease to reduce the effect of the virus.[1]

CONCLUSION

There is an emergent need for public health measures due to the Chikungunya outbreak in Maharashtra state and increased GBS cases. Active vector control, better diagnostic facilities, and health education about chikungunya are important in controlling the disease and reducing its complications, especially neurological ones.[1,2]

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How to cite: Sahai S, Das NK, Chate SS, Kulkarni SS. Rising Co-incidence of Chikungunya and Guillain-Barré Syndrome in Maharashtra, India. MIMER Med J 2025;9(1):5-6.

Source of Support: Nil. **Conflicts of Interest:** None declared.