

Calamity of secondary Dengue Virus followed by climatic changes

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Madam, This is to bring your attention to a long-standing issue despite several activities devised to curb it. Being aware of the effect of drastic climatic changes, developing countries like Pakistan should remain alert about the emergence of infectious outbreaks. The stagnant water after heavy rainfall and flood is a ground for the breeding of dengue vector called *Aedes aegypti* mosquitoes. The virus is transmitted from one person to another through these mosquitoes. Lately, the surge in the cases of dengue virus was due to massive flooding in Pakistan in 2022. A total of 25932 cases were reported and 62 deaths were recorded in the dengue outbreak during the flood crisis of 2022.¹

Dengue virus comprises of four serotypes 1, 2, 3, and 4. A person infected by a distinct serotype of the virus gains immunity against it and future infection by the same DENV will not affect the person's health but infection by a heterogenous serotype causes secondary infection in the form of dengue haemorrhagic fever (DHF) or dengue shock syndrome (DSS). Expansive capillary leakage in DHF due to an increase in the permeability of blood vessels can turn on a shock state called DSS. This deprivation of blood to highly functional organs like the brain, kidney, and heart puts them at risk of multi-organ failure.² The seasonal surge of secondary infection puts a burden on hospitals as the patient requires vigilant inpatient hospital care. The patient's health deteriorates further because of self-treatment at home with local herbs and over-the-counter (OTC) drugs.³

As modern medicine is focused more on prevention than treatment, the need for the approval of the use of the dengue vaccine on high-risk individuals in an endemic country like Pakistan should be considered. The DENVAXIA is a well-tolerated vaccine protecting against all the serotypes and is approved for use in individuals 9 to 45 years who are previously infected by the dengue virus

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in the past.⁴ The vaccine will restrain the rise in DHF and DSS cases as it is for high-risk individuals who are already infected in the past thus curbing the incidence of secondary infection. Many endemic countries like the Philippines and Brazil have already taken a step against secondary dengue by granting the license of DENVAXIA.⁵ As Pakistan is a developing country, approving the license for DENVAXIA should be considered.

Disclaimer: None.

Conflict of interest: None.

Funding disclosure: None.

DOI: <https://doi.org/10.47391/JPMA.9623>

Submission completion date: 18-04-2023

Acceptance date: 22-06-2023

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