EDITORIAL

Mosquito Bite and the Deadly Duo

Wasim Alamgir[1], Javaid Usman[2]

Avoiding a mosquito bite can prevent a number of viral as well as parasitic diseases like Chikungunya, Dengue, Japanese encephalitis, Rift valley fever, Yellow fever, Zika, Malaria and Lymphatic Filariasis. Of all these infections, malaria has been our nemesis right from the dawn of history. However, it is Dengue which has established itself as the most successful arthropod-borne viral infection not only in Pakistan but globally.[1]

The first case of Dengue in Pakistan was reported in 1994 from Karachi, after which it went quiet for almost twelve years to return in the form of an epidemic in 2006, which again remained limited to Karachi. However, it spread to many other parts of the country in the next few years on endemic scales.

A person can get infected four times as the Dengue virus has four serotypes (DEN1, DEN2, DEN3 and DEN4) each of which confers monotypic immunity. It is now a recognized acute febrile illness of the monsoon season (July-September), when a drop temperature and increased humidity provide optimal conditions for this urban dwelling, dawn and dusk, vector mosquito, Aedes aegypti. This vector now seems to be defying these climatic conditions as patients continue to report to hospitals in the winter months as well.

The textbook diagnosis of Dengue looks simple; by detecting the virus either (by viral culture), its nucleic acid (by PCR), its components like the non-structural protein (NS-1), or the evidence of infection (IgM), or if none of these is available, then the surrogate markers like the typical bicytopenia showing reduced neutrophils and platelets are indicators of the disease. Similarly, the clinical diagnosis is not very difficult once the epidemic is established, due to its peculiar symptoms like retro-orbital pain and body aches , so severe as if the bones will break, hence the name 'Break Bone' fever.

Dengue is temporarily incapacitating but rarely fatal, and in Pakistan it has a case fatality rate around 0.4 per cent.[2] This low fatality rate should not lead to complacency as every life is precious. A few fundamentals, however, need emphasis especially for the young doctors and the medical staff attending the patients of Dengue. Like many other infectious diseases, Dengue follows the principle of the “tip of the iceberg”. Majority of those infected with the virus, remain either asymptomatic or present with minimum symptoms including low grade fever. However, a small percentage of patients may proceed to the critical stage called the Dengue Haemmorhagic Fever (DHF)/Dengue Shock Syndrome (DSS) and warrant special attention. These are basically the manifestations of underlying plasma leakage and it is this cohort of patients that are at an increased risk of an adverse outcome.

The parameter which helps in this situation is the packed cell volume (haematocrit), an increase of about 15% of which is a reliable indicator of internal dehydration.
DHF/DSS occur as a result of a second exposure by a different serotype, and a still not completely understood phenomenon, known as the Antibody Dependent Enhancement (ADE).

Pakistan has barely recovered from the COVID19 pandemic, hit by the economic crisis and now unprecedented floods in Sindh and Baluchistan, where most parts are still inundated and are likely to be so for another several weeks, we are indeed in a very difficult situation. An estimated 6.4 million people require immediate assistance as around 1.96 million houses, 22,000 schools and 12,716 km of roads have been either destroyed or damaged in 81 districts.[3] Ironically these two provinces have bulk of the country's falciparum malaria cases, which is the most lethal form with severe complications like heavy parasitaemia, cerebral malaria, black water fever and chloroquine resistance.

Stagnant water all around the stranded people is a perfect mosquito breeding haven. It is difficult to comprehend the plight of people now living along the roadside under a tent in hot and humid conditions, as they are exposed twenty-four seven, either to the Dengue mosquito at dawn and dusk or, malaria causing anopheles mosquito at night.

The magnitude of this problem is much bigger than the resources of any medical community and the government. Spraying insecticides over this volume is logistically not feasible. The only practical solution is the use of personal protective measures.

Deaths from these two diseases along with gastroenteritis have already started to occur. The exact toll of these mosquito bites will be written by the medical historians or the statisticians sometime in the future. It is the youth of Pakistan which has once again risen to the occasion and is working relentlessly on volunteer basis, to reach out to these people not only providing them with mosquito nets and repellants but explaining their proper use. This altruistic effort will definitely save many lives.

Editor-in-Chief

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[1]*Vice Chancellor*
National University of Medical Sciences, Rawalpindi, Pakistan
[2]*Army Medical College*
National University of Medical Sciences, Rawalpindi, Pakistan
Email: jvd_usman@yahoo.com

REFERENCES

1. Dengue and severe Dengue. WHO Fact sheets. 10 January 2022
2. Final report Pakistan: Dengue Response. 31 March 2022
3. WFP Pakistan Situation Report. 19 September 2022