

EDITORIAL

## Dengue!!! A Current Threat with Previous Experience

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Dengue is a global health problem. Some countries describe it as 'endemic' where other countries as 'epidemic' according to the prevalence of the disease<sup>1</sup>. Dengue virus transmitted by the infected female *Aedes aegypti* and *Aedes albopictus* mosquitoes, belongs to the genus Flavivirus which is an envelope positive-sense single-stranded RNA virus. Rainy season (June to October) is the prime time of spreading the infection in Southeast Asia. Four serotypes of dengue viruses (DEN-1, DEN-2, DEN-3 and DEN-4) are able to infect humans and cause dengue haemorrhagic fever/dengue shock syndrome like severe infections. Moreover, cross-reactive antibodies (IgM and IgG) produce against other serotype when infection occurs with one serotype. This is one of the diagnostic problem for acute dengue<sup>2</sup>. Some researchers experienced that without warning signs and mild symptoms were found in DEN-1, severe dengue was found in DEN-2 patients as compared to other serotypes and musculoskeletal symptoms were prominent in DEN-3 infected patients. So that different receptors or organs are targeted to establish infection by different dengue serotypes<sup>3</sup>. This virus circulates in the blood of an infected person for 2 – 7 days, at that time the infected person develops a fever. After appearance of the first symptoms (for 4 – 5 days; maximum 12 days), infected patients can transmit the infection via *Aedes* mosquitoes<sup>1</sup>. Clinical presentation of dengue virus infection in humans ranging from clinically asymptomatic or transient

nonspecific febrile illness to classical dengue fever (DF) and dengue haemorrhagic fever/dengue shock syndrome (DHF/ DSS). Fever, headache, rash, bone and muscle pains with or without abdominal pain are the general clinical presentation of patients with DF and early DHF/DSS. Haemorrhagic manifestations such as haematuria, bleeding gums, epistaxis, hematemesis, melena, and ecchymosis develop in DHF. DHF patients develop thrombocytopenia and haemoconcentration. Some patients may progress into DSS, leading to profound shock and death if not diagnosed or treated properly<sup>2</sup>.

Among the major health problems in the Southeast Asia, dengue was one of them since 1950's. Malaysia experienced first dengue case in 1902<sup>4</sup>. Major outbreaks in Malaysia were in 1974, 1978, 1982 and 1990. In Malaysia, maximum number of dengue cases were observed between 2014 and 2017. A total of 108,698 dengue cases were reported in Malaysia in 2014. This number was decreased to around 101,357 in 2016 but the mortality rate was 10% higher than that of 2014. The dengue situation in Malaysia came under in 2017. However, the number was still greater than that in 2013<sup>5,6</sup>.

According to WHO (2019), the cumulative number of cases of dengue reported as of 10 August 2019 was 82,529 including 120 deaths in Malaysia. This is higher compared to 44,613 cases with 73 deaths reported during the same period last year<sup>1</sup>. It was found that 251 hotspots for dengue mainly in nine states Selangor, Sabah, Penang, Sarawak, Federal Territories, Kelantan, Johor, Pahang and Negeri Sembilan where most of the hotspots were flats and apartments<sup>7</sup>. Among the states, Sabah recorded 2,707 dengue cases with six deaths up to July 2019, Sandakan was the highest and Tawau stood second in number of cases with five deaths<sup>8</sup>. Some researchers observed that circulating serotypes was

changing within different years. In 2014, DEN-1 was predominant in Sabah whereas in 2015, DEN-2 was predominant<sup>9</sup>. In Sandakan, DEN-1 was the predominant serotype in 2018 according to some investigators. Again, they found co-infection with more than one DEN serotypes<sup>10</sup>.

Not only Malaysia, Vietnam also reported more than 105,000 dengue fever patients with 10 death. Thailand reported 49,174 cases with 64 deaths. In Bangladesh, Myanmar, Cambodia, and Laos fatal dengue cases are also increasing this year. Bangladesh is experiencing its biggest outbreak in two decades with at least 40 people dead. According to Bangladesh's Ministry of Health, a total of 43,271 dengue patients in Bangladesh from January to August of this year. As in Myanmar, more than 3,100 cases and at least 10 deaths were recorded, while 13,000 cases of dengue fever from January to June were recorded by Cambodia. In Laos, 11,561 people were diagnosed with dengue fever and 27 died<sup>11</sup>.

Recently, Malaysian Government has implemented a National Dengue Plan (2015 – 2020) for early detection and measure for the infection during the course of an outbreak. According to many studies in this field, viral factors is one of the risk factors and components of interest. Shifting of dengue serotypes and genotypes may contribute to the increasing number of dengue cases due to an antibody-dependent enhancement (ADE) effect. Several measures have been taken by Government for the prevention of dengue such as fogging and removing mosquito breeding sites<sup>3</sup>.

Prevention is better than cure. Preventive measure should be taken as well as early detection of circulating serotypes that could help to prevent serious dengue clinical outcomes during outbreaks.

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