Lessons of entomological surveillance learnt from dengue outbreaks in Tamil Nadu, India

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Dengue is the prime vector borne disease in tropical and sub-tropical countries in the world. Towards its prevention and control, various measures have been undertaken by the public health managers. Among measures revealed so far, entomological surveillance is the priority as there is no specific medicine available for dengue. Present study unfolds many observations made from several outbreaks of dengue in the province Tamil Nadu, India from 2012 in which the attributes of entomological indices, House Index (HI), Container Index (CI) and Breteau Index (BI) have been highlighted. To find out the possibilities of the presence of Aedes larvae in human dwelling rapidly based on Premises Condition Index (PCI) factors and the scores of variables in PCI, namely cleanliness of house, yard and degree of shadow have been analyzed in which we arrived that the probability of presence of positive premises was four times higher in the premises with 75% shadow compared with premises with a 25% shadow. These findings showed a significant association ($p<0.001$) with positive premises. The significance of Aedes indices was studied in an outbreak of dengue at Tirunelveli District of Tamil Nadu, in which it was learnt that 1.6% of HI from 48.2% HI at the 15th day of intervention halted the outbreak. In another outbreak, it was proposed to understand the significance of Aedes indices have been taken for the evaluation of dengue control in Rajapalayam municipality of Tamil Nadu, India. From this study it was learnt that stratification or delimitation is the foremost step to prioritize like high, moderate and low magnitude based on criteria prevailed in a place of outbreak to implement appropriate interventions, the incubation of dengue serovars in human (3-14 days) is related to determine the days required for halting the outbreak, time taken to control measures exceeded 14±1 days shown lacunae in our intervention, degrees of involvement among workers and supervisors in dengue control lead to halting the outbreak in time and also learnt that the thresholds of Aedes indices have been taken in part to stop the dengue outbreak. Amalgamating of three outbreaks occurred in Cuddalore, Nagapattinam and Tirunelveli, it was learnt that the behavior of dengue viruses through the entomological surveillance and their role in supporting epidemiological, clinical, and laboratory diagnosis of dengue virus and ultimately to use these information to forecast dengue as well as to justify intervention measures. Since these observations have merits to prepare control strategic plan of dengue, it may have discussion in the forum.

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