Climatic factors, the abundance of *Aedes aegypti* and dengue infection in Nuwaragam Palatha East (NPE) MOH area, Anuradhapura

M.G.R.S.S. Gunathilaka[1], Y.P.J.N. Warnasekara[1], S.A.M. Kularathna[2], R.P.V.J. Rajapaksha[3], M.A.R.V. Muthugala[4], and R.M.A.S. Rathnayaka[5]

Abstract

In recent decades, the incidence of dengue has risen dramatically around the world. Dengue is transmitted by Aedes mosquitoes, primarily by *Aedes aegypti*, and *Aedes albopictus*. The dengue transmission, as well as the abundance of the dengue vectors, usually show a seasonal variation. These patterns are partly driven by the meteorological parameters including rainfall, temperature, and humidity. The vector indices are the mainstay of the monitoring of dengue vector populations. The commonly used indices are the House Index (HI - the percentage of houses infested with larvae) the Container Index (CI - the percentage of water holding containers infested with larvae) and the Breteau Index (BI - the number of positive containers per 100 houses inspected).This is a secondary data analysis which was aimed to find the relationship between the three larval indices and cases of dengue/dengue haemorrhagic fever reported from the Nuwaragam Palatha East (NPE) Medical Officer of Health (MOH) area of Anuradhapura district. Records of dengue cases, and the vector indices, in the NPE MOH area, between 1st January and 31st December 2016 were extracted from the registries of Regional Director of Health Services (RDHS) office Anuradhapura. Meteorological data were obtained from the regional branch of the Meteorology Department, Anuradhapura. The incidence of dengue was highest in the month of July in this MOH area. The BI was high in October. The vector indices do not show a significant relationship with the incidence of dengue cases in this area (The correlation coefficient and P values are 0.139/0.66, -0.071/0.82, and 0.432/0.161 respectively for BI, CI, and HI). The minimum, maximum and the mean temperatures showed a significant positive correlation with the rising of the incidence of dengue. The correlation coefficient and P values were 0.805/0.002, 0. 712/0.009, and 0.726/0.008 respectively. In conclusion, a statistically significant positive correlation is observed between the temperature and the increasing incidence of dengue. The vector densities and the other metrological parameters did not show a correlation. However, since data is available only during a limited period, it needs further studies to confirm the non-correlation between these variables.

Keywords: *Dengue, Meteorological parameters, Vector indices*

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[1] *Faculty of Medicine and Allied Sciences, Rajarata University of Sri Lanka, Anuradhapura, Sri Lanka. Corresponding author's email: mgrssgunathilaka@gmail.com*

[2] *Faculty of Medicine, University of Peradeniya, Peradeniya, Sri Lanka.*

[3] *Faculty of Veterinary Medicine and Animal Sciences, University of Peradeniya, Peradeniya, Sri Lanka.*

[4] *Teaching Hospital Kandy, Sri Lanka.*

[5] *Office of the Regional Director of Health Services, Anuradhapura, Sri Lanka.*