009/A

Co-existence of double serotypes of dengue in patients of Gampaha District

Dulan Jayasooriya[1], Y I N Silva Gunawardene[1], M Hapugoda[1], R Premarathne, A Manamperi[1], H J De Silva[2], W Abeyewickreme[1*]
[1] *Molecular Medicine Unit, Faculty of Medicine, University of Kelaniya, Thalagolla Road, Ragama.*
[2] *Department of Medicine, Faculty of Medicine, University of Kelaniya, Thalagolla Road, Ragama.*

Dengue virus (DENV) known to cause a productive cytolytic infection in humans exists in four different serotypes Dengue 1 (D1), Dengue 2 (D2), Dengue 3 (D3) and Dengue 4 (D4). Among 4 serotypes of DENV, D 3 thought to be associated with explosive DHF epidemics and severe disease in many countries**.** Our objective was to determine the prevalence of dengue serotypes in Gampaha District and to correlate them with disease severity. Serum samples were collected from patients who were within 4 days of onset of fever and clinically suspected of dengue according to WHO criteria. Total viral RNA extracted from each serum sample was subjected to RT-PCR followed by a semi-nested PCR using specific primers. Out of 91 samples collected between Nov 2005 and Dec 2006, 16 samples were confirmed positive for DENV RNA by RT-PCR. Our results of multiplex semi-nested PCR indicated that 9/16 (56.25 %) of the positive cases were co-infected with serotype 2 and 3 (D2 & D3), while 4/16 (25%) were infected with D 3 and 3/16 (18.75 %) with D 2. 3/4 of D 3 cases had DHF , 1/3 of D2 cases were DHF while there were no DHF cases among the D2 and D3 co-infected patients. The mean Packed cell Volume (PCV) values of D3, D2 and D2 & D3 co-infected were 53.8 %, 48 % and 39.6% respectively while the mean platelet values of those were 66,000 mm^3, 123,000 mm^3 and 174.000 mm^3 , respectively. Dengue infection by a single serotype is common among patients. Although few cases of co-infection by more than one serotype had been previously reported in a few other countries, this is the first description of simultaneous co-infection by D2 and D3 in Gampaha district. In this limited study we have observed a reduction of disease severity in D2 and D3 simultaneously co-infected patients. Could simultaneous co-infection by more than one serotype or a combination of two particular serotypes have lead to a decrease in disease severity among dengue patients is a matter yet to be studied. Further studies are needed to support these conjectures and to establish the clinical implications of simultaneous co-infection on the prevalence of DHF and disease severity.

Acknowledgement: NSF (grant SIDA/2006/BT/02) & IAEA (SRL TC 6/028)

*wabeyewickreme@yahoo.com Tel: 2960483