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Effect of silent transmission and clustering of cases on transmission of dengue in Gampaha district

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Silent transmission of dengue virus and clustering of cases have been suggested as possible factors for the increasing incidence of dengue fever. Objective of this study was to determine the presence of silent transmission and clustering of cases of dengue fever in the Gampaha District. Study was carried out using cluster investigation method. A cluster consists of family members and immediate neighbours (minimum of 20) of a dengue index-case. Serum samples from volunteers were tested for anti-dengue antibodies using Dengue-Duo-IgM/IgG Rapid Cassette (Panbio diagnostics, Australia). Using 7 index cases, 148 volunteers (68 Males); mean age: 35.9 years were enrolled. Of the 148, 41 had evidence of exposure to dengue virus [positive for IgM: 68.4% (28/41), IgM & IgG: 17% (7/41) and IgG: 14.6% (6/41)]. Out of 28 primary infections, 71.4% (20/28) were asymptomatic. Of the 7 secondary infections, 14.28% (1/7) was asymptomatic. Of the 6 previous exposures to dengue, 4 (66.67%) were asymptomatic. There was no significant association between sex and exposure to infection [31% (21/68) males vs 25% (20/80) females, $p>0.05$] or between sex and occurrence of

symptoms among exposed individuals [71% (15/21) males vs 50% (10/20) females, p>0.05]. Older individuals aged over 40 years, were most likely to be asymptomatic than younger persons (94% (14/15 exposed) vs 50% (13/26 exposed), P<0.01). Out of 7 clusters investigated, 1 had >50%, 4 had >25% and 2 had <25% clustering effects. A high proportion of asymptomatic infections were observed among adults over 40 years without gender difference. Study suggests persistence of silent transmission of dengue virus with a trend towards clustering around cases.

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