SRI LANKA COLLEGE OF PAEDIATRICIANS

Proceedings of the Sri Lanka College of Paediatricians

22nd Annual Scientific Congress

29th - 31st August

2019

Cinnamon Grand

ISBN: 1391-2992
Volume 5 No. 3

ASYMPTOMATIC DENGUE INFECTION IN HOUSEHOLD CONTACTS OF DENGUE PATIENTS AND THE RELATIONSHIP TO IMMUNE STATUS OF PATIENTS AND MOSQUITO 'INFECTIOUSNESS'

P D Dayananda[1], D G Harendra de Silva[2], Dhammika Silva[3], Randula Ranawaka[2] LakKumar Fernando[3], B G D N K de Silva[1]

[1]Centre for Biotechnology, Department Zoology, Faculty of Applied Sciences, Sri Jayewardenepura University, Sri Lanka, [2]Department of Paediatrics, Faculty of Medicine, Colombo, Sri Lanka,, [3]Centre for Clinical Management of Dengue and Dengue Haemorrhagic Fever, Negombo, Sri Lanka

INTRODUCTION

Studies on mosquito transmission of dengue from asymptomatic patients have not been adequately studied, the level of mosquito *infectiousness* has not been sufficiently investigated.

OBJECTIVE

Dengue prevalence in *asymptomatic* household contacts of confirmed dengue patients in a high-risk cluster in Sri Lanka, the relationship to immune status of patients and of mosquito infectiousness was studied.

METHOD

A cohort of household contacts of dengue confirmed patients (n=29) managed at Centre for Clinical Management of Dengue and Dengue Heamorrhagic Fever, Negombo, Sri Lanka were selected. Subjects with no current symptoms and known past history of dengue were studied (n=72). Multiple tests; Rapid immunochromatography for NS1Ag, IgG, IgM; ELISA, for NS1Ag, IgG/IgM (Capture) and Indirect IgG were performed. In addition, laboratory reared naive *Aedes* mosquitos were fed with blood of subjects and incubated 14 days, and NS1Ag tested in mosquito tissues. Detection of dengue IgM, NS1Ag in clinical or mosquito samples was considered as confirmed acute infection.

Ethical Permission was granted by the SLCP.

RESULTS

66.6% (48/72) subjects had evidence of previous exposure to dengue infection. Ten of these 48 subjects (20.83%) were considered having immediate asymptomatic infection. 2/10 had positive NS1Ag. Evidence for

infection in 9/10 subjects was through mosquito inoculation. This demonstrated the role of asymptomatic carriers in potential disease transmission.

CONCLUSIONS

High incidence of previous infection in a highly endemic area, raises several issues: (a) those with positive IgG may have been totally protected due to immunity of the prevalent serotype or short-term cross immunity to another serotype, despite exposure (b) potential use of an appropriate vaccine in future (c) need to further study the balance of neutralizing and enhancing antibodies. High level of dengue infection suggested by high IgG seropositivity suggested that most infections are either asymptomatic or mildly symptomatic that does not prompt medical attention, but may have infectious viraemia, who are reservoir carriers that immensely contribute to the chain of transmission.