Role of NS1 Antigen detection in the diagnosis of dengue and dengue haemorrhagic fever

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In Sri Lanka dengue fever (DF) / dengue haemorrhagic fever (DHF) continue to be a major public health problem since 2008. In many resource poor settings including Sri Lanka aetiology based laboratory confirmation of clinically suspected DF / DHF has been lacking. In countries with developed diagnostic facilities dengue NS 1 antigen detection has been in use. Some claim that the NS1 is a long lived antigen in the course of DF / DHF and thus would be good viral marker up to fever days 9 in DF / DHF. Hence, the aim of this study was to assess the usefulness of dengue NS1 antigen in the diagnosis of DF / DHF.

This study was carried out in the medical and paediatric wards of the Teaching Hospital, Jaffna from December 2009 to January 2010 covering the DF / DHF outbreak. A total of 300 patients with clinically suspected DF / DHF were recruited for the study. Five (5) ml blood was obtained after getting an informed written consent. All 300 samples were tested for Dengue NS1 antigen using ELISA (Pan Bio Diagnostics, Australia). Clinical and demographic data was obtained from each patient using a pre-tested questionnaire and the data were analyzed using statistical software, SPSS Version 17.

Of the 300 patients, 53% were males. 61 % were adults and 39% were children. The mean age of this cohort was 25.27 years (Range = 1-61) with a mean fever duration of 6.74 days. Of the 300 samples tested 124 (41.3%) were positive for Dengue NS1 antigen. Among the NS1 positives, 61.3% patients had platelet counts of <100,000. In more than half of the Dengue NS1 positive study cohort (54.8%), Dengue NS1 was detected in <5days of fever. The association between Dengue NS1 and fever days was statistically significant ($p < 0.05$).

Dengue NS1 antigen was detectable mainly in patients with fever <5days. In this regard dengue NS1antigen detection will be more useful in the early diagnosis of DF / DHF. As DF / DHF cause increased morbidity and mortality, prompt diagnosis will be useful for the better management of patients.

Key words: Dengue NS1 antigen, diagnosis, dengue / dengue haemorrhagic fever, Sri Lanka.

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