Apropos “Evaluation of Nonstructural 1 Protein Rapid Test for Dengue Virus at the Narita Airport Quarantine Station, Japan”

Dear Editor: We comment on the laboratory data on 23 dengue-virus positive cases at the Narita Airport Quarantine Station (1) which indicated almost identical sensitivity of the dengue virus (DENV) NS1 antigen detection by the ELISA and the rapid test. The IgM/IgG detection employing either the antibody-capture ELISA or the rapid test was not found suitable to identify any DENV-carrying individuals. Our purpose is to share with clinicians and public health professionals the effectiveness of the combined rapid DENV NS1 and IgM/IgG testing to detect cases with a primary or secondary virus infection during an outbreak.

The utility of a single-step immunochromatographic, one step dengue NS1 Ag and IgG/IgM test, (Dengue Duo; Standard Diagnostics, St. Ingbert, Germany) was immense during the 2010 DENV outbreak in Delhi, India. Among 175 suspected cases, 86 were NS1 positive and 89 were NS1 negative. Among 86 NS1-positive patients, 23 were IgM positive, 4 were IgG positive, and 6 were positive for all three markers. The 89 NS1-negative patients included 2 who were IgM positive, 8 who were IgG positive, and 7 who were positive both IgM and IgG: 72 were negative for all three markers and 53 patients were positive exclusively for NS1. Using Dengue Duo test, it was possible to diagnose 61 additional patients: these NS1 positives included 57 who were negative for IgM and 4 who were positive for IgG only (2).

Recently a novel serotyping NS1-ELISA has been described to identify the individual DENV serotypes (3). That format should be helpful during DENV screening. For example, among the 23 DENV infected cases at Narita Airport Quarantine Station, there were two DENV-2 and one DENV-4 infected cases that were positive by NS1 ELISA exclusively: one of these two DENV-2 cases was also IgM positive. Among them, a solitary DENV-2 and DENV-4 infection would have been missed by the combined rapid NS1 and the IgM/IgG test (1). In all probability, DENV-2 and DENV-4 infections should be picked up during the NS1-ELISA novel serotyping (3) ELISA or the rapid NS1 format.

In conclusion, a point-of-care format to detect DENV NS1 plus IgM and IgG concurrently is essential for diagnosis and DENV serotyping. Such a format would be useful for screening not only at the international airports but in resource-poor laboratories in several countries. The scenario in developing countries is alarming not only in rural and remote locations but also in urban areas (4).

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Conflict of interest None to declare.

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REFERENCES

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