



## LETTER TO THE EDITOR

# Simultaneous testing for dengue virus NS1, IgM, IgG, and counting of platelets



### To the Editor

We are in agreement with the reported usefulness, in Taiwan, of the rapid, point-of-care laboratory diagnosis of dengue virus (DENV) infection employing the commercial non-structural protein 1 (NS1) Ag STRIP (Bio-Rad Laboratories, Maines-la-Couquette, France). In endemic areas, concurrent testing for DENV NS1 antigen and IgG and IgM, if accompanied by an estimation of platelet counts, would ensure precise case identification and appropriate management of DENV infection, which would be beneficial for patients, clinicians, and public health officials. This was evident during the 2010 spurt in dengue cases at a 140-bed, tertiary care, multidisciplinary hospital in Delhi, India.

During the 2010 outbreak of DENV in Delhi, a combined antigen–antibody screening was helpful to diagnose additional cases (2). Among the 1886 suspected cases, there were 678 NS1 positives (394 exclusively NS1 positive, 145 IgM copositive, 29 IgG copositive, and 110 copositive for IgM and IgG) and 1208 NS1 negatives (942 conegative for IgM and IgG, 48 IgM copositive, 96 IgG copositive, and 123 copositive for IgM and IgG). Based on the above NS1 screening, it was possible to diagnose DENV infection in 423 cases. Of these, 394 cases were NS1 positive and IgM negative and were in the initial phase of primary infection, while 29 cases were NS1 positive but IgG positive and were in the initial phase of secondary infection. They would have escaped detection if the serology technique based on IgM/IgG reactivity had been used. Furthermore, the platelet counts in NS1-positive patients were lower than NS1 negatives, while such counts were  $<20 \times 10^9/\text{Lin } 20$  NS1 antigen positives and 42 NS1 negatives.<sup>1</sup>

Single-step testing for dengue virus antigen and antibody as well enumeration of platelets in Taiwan would ensure a concurrent diagnosis of thrombocytopenia. This would assist clinicians in offering platelet infusions much earlier than with two-tier laboratory testing.

Prospective plans to tackle DENV infection in Taiwan<sup>2</sup> should include a briefing about the basics of mosquitoes causing DENV infection. The vectors responsible for dengue fever, *Aedes aegypti* or *Aedes albopictus*, are day biters but will also bite at night if there is sufficient artificial lighting. *A. aegypti* is particularly fond of ankles when searching for a good spot to bite a human.<sup>3</sup> *A. albopictus* is a very aggressive daytime biter, with peaks occurring during early morning or late afternoon. Both are container-inhabiting species that lay eggs in domestic and peridomestic clean water-containing receptacles. Generally, antimosquito measures are practiced during the night when repellents, insecticides, or mosquito nets are used. Even after nocturnal caretaking, one could still be exposed to bites from the *Aedes* group of mosquitoes.

In conclusion, the future utility of the dengue NS1 Ag STRIP in Taiwan and elsewhere would be greatly enhanced through a concurrent assay for DENV IgM and IgG and enumeration of platelets in suspected cases of DENV infection. This would guarantee earlier disease diagnosis, rational clinical care, and an appropriate public health response.

### Acknowledgments

The Secretarial assistance of Ms Sangeeta Devi is acknowledged.

### References

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16 November 2012