

Letter to editor

Re: First isolation of dengue virus from the 2010 epidemic in Nepal

Subhash C. Arya* and Nirmala Agarwal

Received 29 October, 2013 Accepted 24 February, 2014 Published online 3 April, 2014

Key words: Nepal, Dengue virus, Vector biology, Day-time protection

We compliment the team of investigators from Kathmandu, Nepal for their meticulous serologic and molecular investigations of patients suspected with dengue virus (DENV) infection during the large 2010 epidemic in Nepal [1]. Several measures are needed to address the rapid emergence of DENV infection in different regions of Nepal.

Recently, DENV infection was reported in Chitwan with a large number of patients presenting in the Chitwan Medical College Teaching Hospital and other privately-run clinics and nursing homes in Bharatpur [2]. Furthermore, in Jhapa district, 17 people, including 13 from Mechinagar Municipality alone, were found to be infected with the disease. Dengue cases were found in Kakadvitta and its adjoining areas, while 12 patients were receiving treatment in various hospitals in Parsa district and 13 had returned home after treatment [3].

In Nepal, diagnosis of DENV infections was based on serologic testing for IgM antibody at different centres in Kathmandu and Mahendranagar, Kanchanpur and Kuhsibu employing IgM-capture ELISA [4]. Molecular investigations were performed at the National Institute of Infectious Diseases, Tokyo, Japan [1]. Rather than relying on a multi-step capture ELISA, it would be convenient to opt for point-of-care, rapid diagnostics in different health care centres across Nepal. Such assay formats involve 1–2 steps, are user friendly and require minimum equipment. Neither sophisticated laboratory facilities nor highly trained technologists are needed.

A concurrent testing for NS1, IgM and IgG is ideal since it would address even cases with atypical presentations. During the 2006–2007 outbreak of DENV in Malaysia, the molecular and serologic response in ten adults with a fatal outcome was remarkable. DENV infection was confirmed in all ten cases by serological tests. Seven were both IgM and IgG positive while three were

IgM negative and IgG positive. Eight of the patients (two were unavailable) tested positive for dengue NS1 while DENV-1 was isolated from one case. Consequently, the presence of anti-dengue Ig antibody with dengue NS1 antigen confirmed the secondary infection in all eight patients [5].

Screening for DENV antigenemia among international travellers at different ports of entry could be introduced to detect persons infected with the virus who could be bitten by DENV vectors during their stay in different regions of Nepal. After viral amplification in mosquitoes, a secondary dissemination of the disease could occur. Furthermore, even prospective international travellers from Nepal to DENV endemic areas should be asked to protect themselves against the mosquito bites while away on any business or pleasure trip.

It is important to educate the community about otherwise ignored basic facts about the mosquito and protection from bites. The mosquitoes of *Aedes* genus, *A. aegypti* and *A. albopictus* are responsible for multiplication and dissemination of dengue Virus, chikungunya virus and yellow fever virus. Both *A. aegypti* and *A. albopictus* are day-biters but will 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 being [6]. *A. albopictus* is a very aggressive day-time biter, with peaks occurring during early morning and late afternoon. Both are container-inhabiting species that lay eggs in domestic and peri-domestic clean water-containing receptacles.

Anti-mosquito measures are practiced universally at night when insecticides and mosquito repellents and mosquito nets are used. In spite of such meticulous night-time care taking, one could still be exposed to bites from mosquitoes of the genus *Aedes* as they are mostly day-biters [6]. The public should be advised to wear full-length

Sant Parmanand Hospital, 18 Alipore Road, Delhi-110054

* Corresponding author:

E-mail: subhashbhapaji@gmail.com

clothes to cover their arms and legs during day-time as well as in the evenings if they go outdoors.

As a final suggestion, fashion designers in Nepal and elsewhere should be urged to create attractive formal and informal clothing for both sexes that would not protect against mosquito bites but also is attractive and suited to the local customs each region. Prominent public personalities like film stars, actors, athletes should wear such clothes during their appearance in public. School children should avoid use of skirts or shorts while in school. local governments should declare an exemption of such garments from sales local taxes.

CONFLICT OF INTEREST

None.

FINANCIAL SUPPORT

None

ETHICAL CLEARANCE

Not required.

REFERENCES

1. Pandey BD, Nabeshima T, Pandey K, Rajendra SP, Shah Y, Adhikari BR, Gupta G, Gautam I, Tun MM, Uchida R, Shrestha M, Kurane I, Morita K. First isolation of dengue virus from the 2010 epidemic in Nepal. *Trop Med Health* 2013; 41(3): 103–111.
2. Dengue spreading fast in Chitwan. Downloaded from http://www.myrepublica.com/portal/index.php?action=news_details&news_id=65202 on November 28, 2013.
3. República. 700 dengue cases found across nation. Downloaded from http://www.myrepublica.com/portal/index.php?action=news_details&news_id=66103 on December 24, 2013.
4. Shah Y, Katuwal A, Pun R, Pant K, Sherchand SP, Pandey K, Joshi DD, Pandey BD. Dengue in western Terai region of Nepal. *J Nepal Health Res Counc* 2012; 10(21): 152–155.
5. Sam SS, Omar SF, Teoh BT, Abd-Jamil J, AbuBakar S. Review of Dengue hemorrhagic fever fatal cases seen among adults: a retrospective study. *PLoS Negl Trop Dis* 2013; 7(5): e2194.
6. Novak R. The Asian tiger mosquito, *Aedes albopictus*. *Wing Beats* 1992; 3(3): 5.