dengue viremia. However, there was an early decrease in circulating PDC levels in children who subsequently developed dengue hemorrhagic fever. A blunted blood PDC response to dengue virus infection was associated with higher viremia levels, and was part of an altered innate immune response and pathogenetic cascade leading to severe disease.


DENGUE EPIDEMIOLOGY: VIRUS EPIDEMIOLOGY, ECOLOGY, AND EMERGENCE

Thomas SJ, Strickman D and Vaughn DW

No abstract available


DENGUE HEMORRHAGIC FEVER EPIDEMIOLOGY IN THAILAND: DESCRIPTION AND FORECASTING OF EPIDEMICS

Nisalak A

After the first large outbreak of DHF/DSS in 1958 in Bangkok and its suburbs, the disease spread to adjacent provinces in the Central region in 1961. In 1964, a major outbreak occurred in big cities in northern and north-eastern Thailand. Since 1968, there have been reports of the disease from almost every province of the country. During the first ten-year period (1958-1967), epidemic occurred in alternate years with peak during the rainy seasons. After 1968, the epidemic pattern of alternate years changed and became irregular for the whole country. Even in low epidemic years, number of patients increased yearly. In 1987, the number of cases recorded was 174285 which was the highest figure ever reported in the WHO South-East Asian region. The case fatality rate was approximately ten percent in 1958, but gradually decreased to below one percent by 1980. The case fatality rate was 0.15 per cent in 2002. The age group between five and nine years remained the high risk group but in recent epidemics more children over 14 years and adults have been affected. In Thailand, *Aedes aegypti* is the main vector of Dengue. Surveillance of DHF cases in Thailand, which has a mainly clinical basis, has been conducted since 1958. Virus isolation from patients admitted to Queen Sirikit National Institute of Child Health (former Children Hospital) has been performed more than 30 years. These serotype patterns will be discussed as whether to use as indicators to predict larger outbreak in the year.

DENGUE: METHODS OF VIRAL ISOLATION AND SERODIAGNOSIS

Nisalak A

To discuss, in detail, the current assays being used for diagnosing acute dengue infections. Discussion will include the advantages and limitations of various modalities. Dengue virus diagnostics began with the hemagglutination inhibition (HI) assay described by Casals and Brown in 1954. Their diagnostic method continues to be utilized and remains a fundamental tool in the diagnosis of acute dengue infection. The HI assay is often employed in dengue epidemiologic studies based on dengue antibody seroprevalence rates (Clarke and Casal 1958). In 1967, a direct, functional, in vitro assay to measure dengue virus neutralizing antibody was developed by Russell and Nisalak (Russell, Nisalak et al. 1967). This assay became known as the dengue plaque reduction neutralization test (PRNT) and introduced an efficient and reproducible assay in which to measure dengue serotype specific neutralizing antibody. The PRNT assay has become the agreed upon standard to measure dengue antibody. Innis and colleagues (1989) applied the anti-JE IgM antibody captured ELISA to dengue and developed a specific assay for acute dengue in countries where JE and dengue co-circulate (Burke, Nisalak et al. 1982; Innis, Nisalak et al. 1989). This assay was an important advance in the diagnosis acute dengue infections. Of equal importance was the assays contribution to the methods available for distinguishing primary versus secondary dengue infections on the basis of comparing IgM/IgG ratios.

The development of commercial assays for detecting anti-dengue IgM/IgG will also be discussed. Western Blot technology is being used on a research basis to study the production of antibody to dengue proteins during the course of infection. Methods of dengue virus detection including intracerebral inoculation of suckling mice, mosquito inoculation and cell culture methods will be discussed. Molecular based Assays to include Polymerase chain reaction (PCR), nested RT-PCR assay, nucleic acid sequence-based amplification (NASBA), and Fluorogenic probe-based 5’ exonuclease assay (Taqman) will be discussed. Lastly, immuno-histochemistry, a powerful technique to diagnose fatal cases of dengue when serology or viral detection are not available, will be briefly addressed.

To understand the challenge of diagnosing dengue infections, one must understand the natural history of disease. Understanding immune responses during primary and secondary infections and the clinical illness which follows is essential to understanding dengue diagnostic methods.