

## DENGUE & DANGEU HEMORRHAGIC FEVER

### Introduction

One of the most important resurgent tropical infectious disease is dengue. Dengue Fever and Dengue Hemorrhagic Fever (DHF) are acute fevers caused by four antigenically related but distinct dengue virus serotypes (DEN 1,2,3 and 4) transmitted by the infected mosquitoes, *Aedes aegypti*. The disease is marked by the onset of sudden high fever, severe headache and pain behind eye eyeballs, pain in muscles and joints; so the disease is also called "break bone fever". The illness lasts for 6-7 days. Other signs and symptoms, are laboratory criteria are given below.

#### *Clinical Criteria*

Fever  
Positive Tourniquet Test  
Petechiae or ecchymosis  
Maculopapular rashes  
Arthralgia, Myalgia  
Gastrointestinal Bleeding  
Shock in Hemorrhagic Shock Syndrome

#### *Laboratory Criteria*

Isolation of the dengue virus in serum or autopsy  
Increased IgM or Igm antibodies titres  
Dengue antigen detection by immunohistochemistry, immunofluorescence, ELISA.  
PCR  
Leukopenia, and Thrombocytopenia (100,000 cells/mm<sup>3</sup> or less)

### Burden of Disease

Dengue is a disease of the tropics and is one of the most important emerging diseases affecting nearly half of the world's population. It is estimated that there are between 50 and 100 million cases of dengue fever and about 500,000 cases of dengue hemorrhagic fever that require hospitalization each year. The World Health Assembly passed a resolution in 1994 which urged Member states to strengthen their national and local programme for the control of DF/DHF.

Dengue outbreaks have been reported from urban areas from all states. All the four serotypes of dengue virus (1,2,3 and 4) exist in India. The Vector *Aedes Aegypti* breed in peridomestic fresh water collections and is found in both urban and rural areas. Analysis of available data from 54 dengue outbreaks between 1954 and 1995 indicate that:

1. Dengue outbreaks occurs both in urban and rural areas; and
2. Over the years there has been an increase in reported cases of dengue fever, dengue hemorrhagic fever and dangue shock syndrome. There are many reasons for resurgence of dengue.
  - a) unplanned and uncontrolled urbanization.
  - b) inadequate waste management and water supply.
  - c) increased distribution and densities of vector mosquitoes.
  - d) lack of effective mosquito control.
  - e) Increased spread of dengue viruses, and
  - f) deterioration of public health infrastructure and surveillance system.

Diagnostic tests for dengue virus are not readily available in most parts of the country. At present, there is no mechanism for monitoring and surveillance for dengue. Following reasons were found to be the cause of epidemic;

1. Breeding conditions for the vector in these areas as in the other parts of India posing a constant threat of Dengue in India.
2. Desert coolers, water storage tanks and utensils, leaking water supplies, wells and fountains, rain water collections and water bodies, tyre dumps, junk cans, rain-soaked and un-cleared garbage, dumps, etc. provide an excellent substrate for Aedes breeding.
3. No Aedes control programme is in existence in India. There is no surveillance of Aedes densities. Dengue is not a notifiable disease in India.
4. The **National Apical Advisory Committee** on surveillance and response to district just set up by the government following outbreak of plague that must have included Dengue as a priority item for surveillance. An emergency plan should be prepared.

### **Strategy**

1. Surveillance for disease and outbreaks
2. Early diagnosis and prompt case management
3. Vector control through community participation and social mobilization
4. Capacity building

There is no separate programme for this however, resources of NAMP are utilized.

### **Comments**

Public understanding and community involvement are the keys to the success of vector control. The steps are:

- a) Vector control through community participation and social mobilization.
- b) All efforts of control should be directed against the Aedes aegypti mosquitoes. Steps should be taken to eliminate the mosquitoes and the breeding places of mosquitoes if possible. Small household collections of water should be properly disposed off.
- c) Prevent mosquito bites.
- d) Educate the public for environment hygiene and preventive measures required for vector control.
- e) There is no specific medicine for the treatment of the disease. Only symptomatic treatment is given. Antipyretics-salicylates (E.g. Aspirin) should never be used in Dengue fever as it act as antiplatelets that increases the bleeding tendency. Paracetamol can be given safely. Fluid and electrolyte balance should be maintained. In some cases platelets, plasma or whole blood may be required. The mosquito control environmental manipulations is required for proper sanitation.