

Dengue/Dengue Haemorrhagic Fever - A Growing Threat to Human Health

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Human Dengue/Dengue haemorrhagic fever/Dengue shock syndrome, is caused by flavivirus, belonging to family Flaviviridae, transmitted by *Aedes* mosquitoes, viz. *A.aegypticus* and *A.albopictus*. This disease may also be transmitted through infected blood products (blood transfusion, plasma platelets). There are four dengue virus serotypes (Den-1, Den-2, Den-3 and Den-4), closely related antigenically. Infection with one serotype provides life-time immunity from reinfection, with that type of dengue and not from being infected by other three types. World Health Organization (WHO) classified Dengue as major global health threat and has estimated that 2.5 – 3 billion people, two-fifth of world population, are now at risk from this disease.

Geographical distribution:

The Dengue viruses are occurring in different parts of the world and are now endemic in more than 100 countries of the world, including Africa, the Americas (Central and South), Eastern Mediterranean tropical and sub-tropical areas of Asia and the Western Pacific. All the four types of dengue virus, are widely prevalent in Indian sub-continent excepting Kashmir and Himalayan regions. According to WHO, there may be 50 million cases of Dengue infection world-wide every year.

The main symptoms of dengue:

The Dengue infection may remain asymptomatic or manifest either as undifferentiated febrile illness, dengue fever (DF) or Dengue haemorrhagic fever (DHF)/Dengue shock syndrome (DSS). In classical DF, there is high-fever, extreme pain in muscles, stiffness of joints, flushed face and severe prostration. DF is also known as break-bone fever because of severe joint pain. In this

condition, there is no mortality, however, DF can lead to serious condition, known as DFS and DSS, a fatal condition, showing symptoms like bleeding from gums and nose, along with vomit, urine and stool. There is bleeding in the intestine. Here blood vessels became permeable, leading to leaking of fluid components from blood vessels to the organs, leading to failure of circulatory system which might cause death, especially in children.

Dengue outbreaks /epidemics :

The outbreaks of Dengue, mainly occur in the summer season, when the mosquito population is at its peak. Earlier, in Texas (USA) an epidemic of higher dengue was reported in 1922, with an estimated cases of more than a million in few months. During the year 1956-1986, out of 1,60,812 cases of DHF reported to WHO, there were 31,178 deaths from different regions of the world. Venezuela faced a large epidemic of DHF/ DSS during 1989-1990. In India, during the year 1996, there was a big outbreak of dengue from Delhi, about 10,252 cases and 423 deaths were reported. In recent years, the outbreak of dengue of serious nature has been reported in 2006, with total of 3400 cases from eleven Indian States and several dozen deaths. The incidence of dengue is increasingly reported from semi-urban areas of India.

The infected humans are the primary reservoir of the dengue virus, serving as a source of virus for mosquitoes. The mosquito becomes infected only if it bites infected person or certain species of monkeys. The mosquito remains infected for life. The virus is injected into skin of victim in droplet of saliva, through the bite of female mosquito, during daylight hours. In this way infection viruses are transmitted from human to human. It requires 8-11 days to incubate virus before the disease

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