

Treatment

There is no specific antiviral treatment. Symptomatic and supportive measures are most important. To lower the temperature during the febrile phase, acetaminophen should be given. **Aspirin must not be used** since it is known to cause bleeding. An antiemetic can be used to prevent nausea and vomiting. Juice or oral rehydration solution in small amounts given frequently is helpful. Close observation for early signs of shock is necessary. The critical period is at the transition from febrile to afebrile phase. Parents should be advised about the warning signs of shock, such as reduced urination, restlessness or drowsiness, fainting, or coldness of extremities. If these symptoms occur, the patient should be hospitalized immediately.

Prevention

1. Prevent mosquito bite, using a bed-net or mosquito repellent.
2. Eliminate breeding places of mosquito inside and around houses by
 - changing water in containers such as flower vases, every week
 - getting rid of unused, broken objects such as old tires, flower pots
 - putting guppies or other fish that feed on mosquito larvae into lotus ponds or other water sources
 - covering all water containers and/or adding larvicidal sand granules (temephos) in water storage tanks to destroy the mosquito larvae
 - adding salt or vinegar into water in ant traps
3. Destroy mosquitoes by any means, e.g. insecticide, mosquito trap, etc.

NO MOSQUITO, NO DENGUE FEVER

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DENGUE HEMORRHAGIC FEVER

HOSPITAL FOR TROPICAL DISEASES

Dengue hemorrhagic fever

Dengue hemorrhagic fever (DHF) is caused by any of the 4 serotypes of dengue virus. When a person is infected with dengue virus for the first time, clinical signs and symptoms are usually mild. However, if he/she is reinfected with a different type of dengue virus, severe conditions such as bleeding or shock may occur and can lead to death. This disease is usually found in children less than 15 years of age. However, recent evidence shows increasing incidence in adolescents and adults.

Transmission

Aedes mosquitoes, mainly *Aedes aegypti* and *Aedes albopictus*, transmit the dengue virus from person to person. This mosquito has a characteristic black and white color. When a female *Aedes* feeds on a dengue virus infected person, the viruses multiply in its body and remain there for the whole life of the mosquito, approximately 1-2 months. Viruses are then transmitted to another person being bitten by that infected mosquito.

Symptoms



Approximately 80-90% of persons infected with dengue virus for the first time are asymptomatic. High fever, headache, muscle and joint pain, and minute bleeding spots underneath skin may be found in some cases and will be diagnosed as dengue fever. A second infection with a different type of dengue virus, however, may cause more severe conditions; known as DHF, which can be divided into 3 phases:

(1) Initial febrile phase: Patients suffer continuous high fever, which may cause febrile convulsion in some children. Other symptoms are headache, anorexia, nausea, vomiting and abdominal pain. Facial flush and hemorrhagic spots over the body, arms and legs are common. This phase usually lasts 2-7 days.

(2) State of shock: The fever subsides at this stage. Patients feel drowsy with profuse sweating, cold hands and feet, rapid and weak pulse, pain at the right upper abdomen, reduced urine output, and easy bleeding such as nose-bleed, vomiting of

blood and passing bloody stool. In severe cases, blood pressure drops drastically resulting in shock which can lead to death. This phase lasts 24-48 hours.

(3) Recovery phase: Patients' conditions improve, indicated by good appetite, normal blood pressure, strong but slow pulse and normal urine output. Bleeding spots underneath skin are still present over the body in some cases.



Diagnosis

The World Health Organization's criteria for diagnosis of DHF are high fever, easy bleeding (positive tourniquet test, bruises, gum bleeding, nose-bleed, etc.), decreased platelets, and concentrated blood. Shock is present in severe cases known as dengue shock syndrome. Serological and/or virological investigations may be performed to confirm the diagnosis.

