

Dengue fever

Causes and symptoms

What are the causes of Dengue fever?

Dengue fever is among the most common mosquito-borne virus infections. Causative agent of the disease is the Dengue virus, of which four different types are known. The virus cannot be transmitted from human to human. In order to spread the disease needs a mosquito as alternate host. The virus multiplies within the organism of the female mosquitoes of the *Aedes aegyptii* (yellow fever mosquito) and *Aedes albopictus* (Asian tiger mosquito) genus and is transmitted by bite. Contrary to the Malaria mosquito these mosquitoes bite both during the day and at dawn. For breeding the mosquitoes rely on reservoirs of tap water or rain water such as pans, cans and basins.

An estimated 50 million people worldwide come down with Dengue fever each year. About 400.00 of these cases take a complicated course of disease resulting in Dengue-haemorrhagic-fever (DHF) or Dengue-Shock-Syndrome (DSS). Infections typically occur in countries like Thailand, India, Indonesia, Sri Lanka, and Brazil. The risk of contracting Dengue fever varies with the seasons. It is high during the rainy season. Recently, more and more cases of Dengue fever are documented. Most victims are children. Dengue fever is the most common disease to be introduced by tourists returning from the tropics.

How does Dengue fever manifest itself?

The majority (more than 90%) of Dengue fever infections pass without complaints or like a common cold. The remaining 10% of patients display the symptoms of classical Dengue fever. Incubation time, i.e. the time until complaints commence, is three to 14 days in the case of Dengue fever. The course of disease can be divided into three stages:

Stage I: Sudden outbreak of disease with high fever, which declines after one or two days. The fever is accompanied by strong headaches, lassitude, dizziness, severe feeling of illness, muscle pains, joint pains and rheumatic pains. Typically, there may be a metallic or bitter taste in the mouth.

Stage II: After the fever has declined temperature rises again. This is also called a "biphasic course of disease". A blotchy skin rash with itching palms and feet may appear. Sometimes the lymph nodes may swell within the whole body.

Stage III: The complaints abate after five or six days. The subsequent convalescence may last several weeks.

In 2% of the cases Dengue fever takes a life-threatening course with severe complications such as Dengue-hemorrhagic-fever (DHF) and Dengue-shock-syndrome (DSS). Mortality ranges from six to 30% in this case. The symptoms are a severely impaired general condition with high fever, bleedings into the skin (petechiae), the mucous membranes, and internal organs, enlargement of the liver and declining blood pressure. There are high-risk groups particularly susceptible to DHF/DSS:

- Sex: Women suffer from complications more often than men
- Race: Caucasians and Asians are frequently afflicted by DHF/DSS, Blacks rarely
- Age: Children of less than 15 years of age are especially vulnerable

Diagnosis and treatment

How is Dengue fever diagnosed?

Dengue fever can be identified in the physical examination by its typical course of disease. An experienced tropical disease specialist will pay attention to a patient's travel history. A journey to the tropics makes the diagnosis Dengue fever more probable. From the fourth day onwards, antibody tests can confirm an infection with the Dengue virus.

How is Dengue fever treated?

Dengue fever is treated symptomatically. This means there is no specific medication available against the causative agent. Therapy aims at alleviating complaints and preventing complications. Diseased people primarily need care and sufficient fluid intake. The amount of fluid needed exceeds the normal requirement due to the fever-related loss. The doctor calculates the daily intake accordingly. It may be sufficient to drink more. In severe courses of Dengue fever intravenous infusions are necessary in order to counterbalance the loss of fluid.

Dengue fever patients suffering from severe pain may be treated with analgesic medication. The fever, too, may be reduced pharmaceutically. Acetylsalicylic acid has to be avoided, though, as it aggravates the bleeding tendency associated with Dengue fever. If complications like bleedings and deteriorating blood pressure occur, intensive care in hospital is required.

Prognosis and prevention

How is the prognosis of Dengue fever?

The prognosis of adults that have contracted Dengue fever is usually good. A past infection does offer limited protection against the particular Dengue virus for a short time. This means that no protection exists against the remaining three virus types. In case of reinfection the course of disease is often more severe. The complications of Dengue fever like DHF or DSS cause problems that may increase the mortality among infants up to 30%.

How to prevent Dengue fever?

At this point, there is no vaccination against Dengue fever. Thus the only prophylaxis available consists of avoiding mosquito bites. As global mosquito control measures have deteriorated individual prophylaxis gains in importance. This means:

- Wearing bright clothing covering legs and arms all day long
- Applying mosquito nets to bed and windows
- Use of air conditioning
- Avoiding or eliminating mosquito breeding places
- Not spending time outdoors, particularly not in gardens, green areas and poor neighbourhoods
- Applying mosquito repellents at all times

More Information about Dengue fever

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Date: 10-31-2008

Source:

Auswärtiges Amt: Merkblatt für Beschäftigte und Reisende, Dengue-Fieber. www.auswaertiges-amt.de (Stand 07/2007)

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