

Malaria

Causes and symptoms

What are the causes of Malaria?

Malaria (ague or marsh fever) is an aguish infectious mosquito-borne disease. In northern and central Europe it mainly affects travellers returning from tropical countries. The causative organism is a parasite called plasmodium, which can only be transmitted by the bite of a female Anopheles mosquito. A sick person cannot infect anyone else directly.

Following the bite of an infected mosquito the parasites initially proliferate in the liver. They then enter the blood stream where they infest red blood corpuscles (erythrocytes) – more plasmodia form. Via the blood circulation they reach further internal organs and cause the typical symptoms of the Malaria-disease like fever, headache and joint pains.

Malaria is the most common infectious disease in the world. Whereas Malaria is known in Europe as affecting individual travellers the tropical disease is widespread in South America, Asia and especially in Africa (accounting for roughly 90% of cases). There are three different forms of Malaria associated with four Malaria agents (plasmodia):

- Malaria quartana caused by plasmodium malaria
- Malaria tertiana caused by plasmodium vivax and plasmodium ovale
- Malaria tropica caused by plasmodium falciparum

The most dangerous form is Malaria tropica – it is the most common kind of Malaria in Africa. Malaria can become life-threatening if the parasites afflict the brain (cerebral malaria) or a kidney failure occurs in the course of disease.

Malaria tertiana and Malaria quartana are usually less dramatic.

How does Malaria manifest itself?

A Malaria infection's incubation time ranges from seven days up to six weeks, depending on the type of parasite. It is possible, though, for all forms of the disease to break out months or even years after the infection. Malaria usually starts out with an overall feeling of illness, headache, joint pains and fever of more than 38°C. Other symptoms may follow, for example:

- shivering
- lassitude
- loss of appetite
- nausea
- vomiting
- diarrhoea
- stomach pains (particularly with children)
- dry cough

Malaria quartana: starts after 18 to 40 days and is rarer than the other types of Malaria. Fever appears usually in a 72-hour-cycle (on the first and fourth day). Malaria quartana does not become life-threatening.

Malaria tertiana: starts after eight to 20 days with a sudden fever changing into rhythmic attacks of fever every 48 hours (on the first and third day) within a few days. Characteristically, in the late afternoon shivering occurs with fever quickly rising over 40°C. This fever attack lasts up to four hours before the body cools down to normal temperature – often repeatedly breaking out in sweat. Malaria tertiana rarely takes a lethal course.

Malaria tropica: has an incubation time of seven to 15 days. This most severe form of Malaria often starts out with unspecific symptoms and may feature anaemia as well as a swelling of liver and spleen. Malaria tropica can result in acute kidney failure and circulatory failure. Characteristic symptoms of severe Malaria are:

- very little or no expulsion of urine
- cognitive impairments
- confusion
- jaundice (icterus)
- breathlessness

Seizures and an increasing loss of consciousness ultimately leading to coma result from the Malaria agents reaching the brain (cerebral Malaria).

Diagnosis and treatment

How is Malaria diagnosed?

Fever of unknown origin and other symptoms like lassitude, headache and stomach complaints in people returning from Malaria areas may be signs of a Malaria infection. If such complaints occur after a journey to respective countries a doctor should be consulted immediately. They can detect the Malaria agent with a blood analysis like the stained blood smear, for example.

How is Malaria treated?

It is advisable to commence with therapy as early as possible. Depending on the type of causative agent and course of disease Malaria is generally treated in hospital, supervised by a tropical disease specialist. Malaria quartana and tertiana therapy usually consists of the pharmaceuticals chloroquine, mefloquine, halofantrine or quinine. These destroy the plasmodia living in the red blood cells. In treating Malaria tertiana an additional drug (like primaquine) is required in order to reach the parasites in the liver. Depending on the extent and localization of the infection Malaria tropica necessitates an individually targeted intensive-care therapy.

Prognosis and prevention

How is the prognosis of Malaria?

The prognosis of Malaria tertiana and quartana is good if treated correctly. The course of Malaria tropica depends on the severity of the infection and the organs afflicted. If appropriately and timely treated a complete recovery from the infection can be expected. In case of inadequate or delayed therapy – or no therapy at all – especially Malaria tropica can prove lethal.

How to prevent Malaria?

Preventive measures consist of avoiding contact with infected mosquitoes. When travelling to areas where Malaria is endemic special heed should be paid to prophylaxis. This includes mosquito nets, adequate clothing and mosquito repellent. Also, certain drugs may be continuously taken one week prior to and four weeks after the voyage. This so called chemoprophylaxis can prevent an outbreak of Malaria but not the causative infection.

Malaria prevention with drugs is not equally applicable to all regions. A tropical disease specialist should be consulted about the possibility of chemoprophylaxis for the respective country. At this point, there is no vaccination against Malaria.

More information about Malaria

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