Malaria

Malaria is a tropical parasitic infection that is spread through the bite of a mosquito. It is a serious illness that can result in death but is curable with prompt treatment. It is vital to ensure that antimalarial medications are sought prior to travel and bite prevention measures are taken. Medical attention should be sought immediately if displaying any symptoms.

Symptoms

Malaria is an acute illness that may be difficult to initially identify. The incubation period can vary depending on the type of malarial parasite infection. Incubation is around 7-14 days, but can be longer when there is partial immunity or when the parasite has been suppressed by antimalarial tablets. In other types of malarial infection, the incubation period is usually between 12 and 18 days. However, incubation can be several months or rarely, years, in cases where emergence into the bloodstream is via the liver.

Travelers should be aware of the symptoms of malaria which are often described as "flu-like" and may include:

- Fever/chills
- Shivering
- Sweating
- Muscle pains
- Headache
- Diarrhea
- Nausea and vomiting
- Generally feeling unwell
- Weakness
- Cough

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If in doubt, seek medical advice as soon as possible. When traveling to malaria-affected regions, it is important to be aware of these symptoms. For reference, if you get a fever between one week after first potential exposure to malaria and up to one year after your return, you should seek medical attention urgently and tell the doctor that you have been in a malaria risk area. The fever pattern may become cyclical, recurring every 48 hours. There are cold and hot phases: in general, the cold stage with shivering lasts 15 to 60 minutes and the hot stage lasts two to six hours, followed by profuse sweating and fatigue. Although certain strains can cause severe symptoms, fatalities are uncommon. In addition, the two species of parasite have dormant liver stages which may cause a relapse of the infection months or even years after the initial exposure.

If the case of malaria progresses to severe illness, these symptoms constitute a medical emergency and may include:

+ Confusion
+ Neurological impairment
+ Seizures
+ Coma
+ Severe anemia
+ Spontaneous bleeding
+ Disseminated intravascular coagulation (blood clots)
+ Respiratory difficulties, including pulmonary edema (a build-up of fluid in the lungs)
+ Acute kidney failure
+ Hypoglycemia (low blood sugar)
+ Swelling and rupturing of the spleen
+ Metabolic acidosis (excessive acidity in the blood); often associated with hypoglycemia (low blood sugar)
+ Dehydration
+ Shock

Individuals that are at increased risk of severe disease if they contract malaria include those with complex co-morbidities or who are immunosuppressed, those without a functioning spleen, children, elderly people, and pregnant women.

Transmission

Malaria is transmitted to humans through the bite of an infected female Anopheles mosquito which carries the parasites in its saliva.

Rarely, person-to-person transmission of malaria can occur directly without a mosquito bite, such as mother to child during pregnancy, following the receipt of a malaria-infected blood transfusion or organ transplant, or through needle stick injury or sharing of needles.

Diagnosis

If you think you might have malaria, it is very important to seek medical attention urgently as the most serious forms of the disease can become life-threatening within 24 hours after symptoms. The most serious form of malaria usually occurs between 6-30 days (and occasionally longer) after exposure.

A blood test will diagnose the presence of malaria. Results should be confirmed on the same day and if positive, the patient should be referred to a specialist center. If blood tests for malaria are negative, tests should be repeated daily for a further two days. Other laboratory techniques can also be used through either molecular diagnosis or antigen detection.

Treatment

Infection with any species of malaria should be treated promptly. Treatment of malaria should be in consultation with an infectious disease or tropical medicine unit.

Most people make a full recovery if treated promptly. Many of the antimalarial medications given prophylactically (see below under Prevention and Control) can also be used to treat the infection. However, if you have taken antimalarial medications preventatively, different medications will be used to treat you. This will also be influenced by your age, whether or not you are pregnant, where the infection was caught, the severity of symptoms, and the type of malarial infection. It is important to inform your doctor of the name of the antimalarial tablets you have been taking.

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Travelers who develop malaria overseas in remote areas where appropriate supervised treatment may not be available can consider self-treatment with emergency standby medication. Emergency standby treatment is intended for travelers who believe they have malaria while overseas and access to medical treatment may not be possible within 24 hours; it is not a replacement for malaria prevention tablets. In this instance, travelers should still seek medical assistance as soon as possible if they develop a fever for definitive diagnosis and treatment to be made. Ensure any standby emergency treatment for malaria has been pre-planned with your doctor so that you are fully informed about the correct dosages and frequency of when to take the medication as well as possible side effects and how to store the tablets. Keep all medications in their packages along with the drug information sheet in the packet. If unsure about whether to take the standby emergency treatment, it is usually safer to do so rather than risk becoming seriously unwell.

Prevention and Control

Despite many decades of research, there is currently no commercially available malaria vaccine. Hence, the focus is primarily on prevention. Bite prevention measures are important in the prevention of malaria and will also help protect against infection with other vector-borne diseases.

The prevention of malaria involves the A, B, C, D steps:

A - Awareness about the risks of exposure to malaria and the symptoms.

B - Bite prevention by following sensible precautions about covering up and using insect repellent sprays.

C – Chemoprophylaxis or another appropriate choice of antimalarial medication, and compliance with the regimen.

D – Diagnosis that is prompt and treatment that is received without delay.

If traveling to an area with malaria, you should wear light colors, long sleeves, socks, and shoes. You should also use DEET-based insect repellents, especially around feeding times such as evenings.

Repellents containing DEET should be used. When using any mosquito repellents, make sure to read the label carefully and follow the instructions exactly. Some repellents cannot be used on children under a certain age.

If in an area requiring sunscreen, then insect repellent should be applied after the sunscreen. Studies have shown that DEET (33% concentration) reduces sunscreen protection from SPF15. However, in concentrations >33% DEET, sunscreen does not reduce the efficacy of the insect repellent. It is therefore recommended that 30-50 SPF sunscreen should be used and DEET should be reapplied after the sunscreen.

Insect repellent should also be reapplied after swimming, in hot countries more frequent application may be required. It should be reapplied on exposed skin throughout the day and should also be used at night both indoors and outdoors. Most mosquitoes are known to bite outdoors, but Aedes aegypti species are also known to bite indoors. All mosquitoes lay their eggs in water, therefore, to reduce larval hatching of mosquitoes ensure there is no standing water left around (e.g. collected in saucers under plant pots).

In addition, insecticide-treated mosquito nets and sleeping in air-conditioned accommodation helps reduce the risk of bites. Mosquitoes breed in stagnant water, so stagnant water should be disposed of or replaced.

Chemoprophylaxis

The choice of chemoprophylaxis—the use of drugs to prevent disease—depends on the malarial parasite species and whether there is resistance. Chemoprophylactic agents are either causal (directed at the liver phase of the malaria parasite life cycle) or suppressive (directed at the red blood cell phase of the malaria parasite life cycle). No regimen is 100% effective, but in combination with preventative measures, it will provide significant protection against malaria.

The choice of antimalarial medication should be tailored to the individual, considering possible risks and benefits to the traveler. Guidance from an experienced practitioner is crucial. Ensuring you have a detailed itinerary prior to travel to include all possible destinations will help

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inform your practitioner to understand which species of parasites you may be exposed to and hence influence the recommended antimalarial prophylaxis.

Antimalarial medication

Below are examples of the antimalarial medications, however, you should seek advice from a specialist, travel clinic, or your doctor for information on the recommended medication for your trip.

Atovaquone plus proguanil is more expensive but can be started one or two days before travel and only needs to be continued for a week after exiting the malaria-affected area, so it has a convenient window for frequent and short period travelers. This medication is not recommended for pregnant or breastfeeding women.

Doxycycline (Vibramycin-D) is relatively cheap and should be commenced three weeks prior to travel, taken weekly, and continued for four weeks after travel. It is recommended to be taken with food or milk.

Mefloquine (Larium) is a once-weekly tablet taken three weeks prior to travel, but it is recommended to take earlier if not taken before, usually as a three-week trial. It should be taken during the trip and for four weeks after travel. This medication should not be taken if you have a seizure disorder. You should also inform your doctor if you have had any previous mental health problems including mild depression.

Chloroquine and proguanil are a combination of antimalarial medications rarely used now as it is largely ineffective against some strains. However, in areas where this species of malarial parasite is less common, it may be recommended. Chloroquine should not be used in those with a history of epilepsy.

Considerations for Travel

Business travelers on frequent visits to highly affected regions like West Africa may need to take chemoprophylaxis for prolonged periods. Choosing the recommended medications will be determined by multiple factors including risk, frequency of visits, and whether the traveler prefers tablet-free periods whilst not traveling.

Travelers that are passing through malaria-affected regions do not generally require chemoprophylaxis if the transit is just to change the aircraft or for refueling. However, if staying overnight in areas of malaria risk, then antimalarial prophylaxis is recommended.

It is crucial to ensure the antimalarials are the recommended ones for the region of travel. It is best to start antimalarials late rather than not at all as they will begin to be effective by the end of the malaria incubation period.

Those on longer-term travel assignments represent a higher risk for contracting malaria. Recent data has demonstrated that around 30% of expatriates develop malaria within 2 years: this has been attributed to poor compliance with prophylaxis in many cases.

Always call the Anvil Assistance line if help is required with medications or any medical issues during travel.

For more information and the most up-to-date facts, please visit the website of the World Health Organization (WHO).

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