



WHAT TO DO DURING A POSSIBLE MALARIA ATTACK

Every rise in temperature (from 38°C in the armpit) longer than 24 hours occurring during or till 3 months after a stay in an area where malaria is found has to be considered as a malaria attack until the contrary is proven, and needs quick medical attention. Always keep a thermometer on hand and check regularly (every 8 hours) in case of malaise even if you think you do not have fever! It regularly occurs that during the first few days the sick person does not have the impression of running fever, which makes the situation very treacherous, because a lot of precious time – during which a malaria attack could have been easily treated - has been lost. If correct treatment is not started in time, such an attack may sometimes result in death within a few days. Moreover, many infectious diseases start with similar symptoms (feeling of flu, with or without fever), which means that in case of fever other infectious diseases must also be considered. Therefore, when possible at least, one must always seek medical help for a blood test (“thick smear” and “thin smear”) in order to detect malaria. Once you’ve returned to Belgium you should insist on an urgent analysis in case of any fever (until 3 months after leaving the malaria zone) and that the result should be known within a few hours! After all, it is impossible to distinguish a beginning malaria attack from a simple flu or sore throat based on the symptoms. In case of **serious symptoms** such as fever lasting longer than 3 days, dark coloured urine, occurrence of jaundice, shortness of breath or reduced consciousness, an urgent hospitalisation is recommended. The following **schedules** have been selected since their effectiveness approximates 100%. Many other schemes are possible but they are definitely less effective! Your physician will select one of the following treatments. It is dangerous to use the treatment on one’s own initiative after return!

SCHEME A

A very effective medicine which is used in case of non-complicated malaria is **Malarone**[®] (one tablet contains 2 active substances: 250 mg atovaquone + 100 mg proguanil) (costs 43,31 € for a box of 12 tablets). Children >40 kg and adults should take 4 tablets at once/day, for three days!. **Malarone**[®] should be taken preferably with greasy food or with milk, every day at the same time. Sometimes the intake of this medicine can cause vomiting.

For children the dose must be adapted:

5-8 kg	2 paediatric tablets/day at once, during 3 successive days
9-10 kg	3 paediatric tablets/day at once, during 3 successive days
11-20 kg	1 tablet for adult/day at once, during 3 successive days
21-30 kg	2 tablets for adult/day at once, during 3 successive days
31-40 kg	3 tablets for adult/day at once, during 3 successive days
> 40 kg	4 tablets for adult/day at once, x 3 days = dose for adult

1 paediatric tablet Malarone Junior[®] contains 62,5 mg atovaquone and 25 mg proguanil.

SCHEME B

A very effective medicine which is used in case of non-complicated malaria is **Riamet**[®] (one tablet contains 2 active substances: 20 mg artemether + 120 mg lumefantrine) (costs €38 for a box of 24 tablets). The total dosis for **Riamet**[®] is 6 times 4 (24) tablets: 4 tablets at initial diagnosis, 4 tablets 8 hours later and then 4 tablets every 12 hours for another 2 days, to be taken with food. For the moment it can be administered to children from the age of 12 years and from a body weight of 35 kg. According to the current guidelines it may not be taken together with antibiotics against travellers’ diarrhoea; the instructions with Riamet[®] mention however that a follow-up with ECG is indicated. It will therefore not be given as a routine treatment at this moment; it will not be administered without medical supervision.

NB. The medicine **Artemisinin and its derivatives** are currently available in many countries in the Far East and also in several countries in sub-Saharan Africa. Since 2005 the World Health Organisation rejects the use of artemisinin as monotherapy, because of the fear of resistance. Only the combination with another effective malaria treatment is acceptable. (“ACT” = “artemisinin combination therapy”), for example with doxycycline (as with quinine), mefloquine (Lariam[®]), Lumefantrine, (**Riamet**[®] is therefore an approved form of ACT). In Africa this combination is known as **Co-artem**.

Tea or herb tablets made from the extracts of the Artemisia annua plant are not recommended because of the insignificant, sometimes even absent, effectiveness.

SCHEME C

QUININE (capsules of 500 mg quinine sulphate) or **QUINIMAX**[®] (tablets of 500 mg, not available in Belgium). This means for the average **adult: 500 mg** every 8 hours for 4 days. If the fever drops slowly, it is advisable to continue quinine for several more days, 1 capsule every 12 hours. In Southeast Asia and in the Amazon region, one has to take quinine for 7 days.

At the same time, start with either: (in case retching or vomiting are present, postpone this part of the treatment until the third day)

- **DOXYCYCLINE (VIBRAMYCINE[®], VIBRATAB[®] or DOXYLETS[®], etc.)** 2 tablets of 100 mg (= 3.5 mg per kg) the first day, followed by 1 tablet of 100 mg (= 2 mg per kg) per day during the next 6 days.
- Or **TETRACYCLINE** 20 mg per kg (maximum 3 x 500 mg per day) for 7 days.

The adjustment of dosage for **children** above 8 years is according to the body weight (quinine: identical scheme as for adults; 10 mg per kg) every 8 hours.

- The combination of Scheme C remains 100% effective in Africa, Latin-America and almost 100% in Asia.
- Quinine sulphate has to be prepared by the pharmacist. If the capsules are kept in a closed brown glass bottle with a desiccant, the expiring date will be after **one year** (in a cardboard box it will expire much earlier).
- When the malaria attack is only treated with quinine (for example only with Quinimax injections), there is a real chance for a later relapse of malaria, since it is not always possible to eliminate all the parasites with this treatment.
- Quinine can be replaced by Artemisinin.
- Tetracycline and doxycycline alone are too weak to combat malaria. Therefore, they **always** need to be combined **with quinine**.
- When the medication is vomited, it is necessary to give quinine by intravenous infusion (drip), in the same dosage, every 8 hours, each drip over 4 hours (this concerns quinine bihydrochloride). As soon as the patient is better, quinine can be given orally, combined with tetracycline or doxycycline.
- When it is not possible to give an infusion, quinine can be given intramuscularly (in the thigh muscle), in the same dosage, every 8 hours (= 3 injections per day). (NEVER ALLOW YOURSELF TO BE INJECTED INTRAVENOUSLY: RISK OF CARDIAC ARREST OR FATAL DROP IN BLOOD PRESSURE).
- Taking tetracycline and doxycycline can cause hypersensitivity reactions in the skin when exposed to sunlight. Therefore be careful with direct exposure to sunlight.
- Tetracycline and doxycycline are not recommended for **children under the age of 8 years** or **during pregnancy** (because of possible discoloration of teeth). When there is no alternative available, quinine can be continued during 7 to 10 days or it can be combined with clindamycin (5 mg/kg 4x per day to 600 mg 3x per day during 5 days).

NB.

- **Halofantrine (HALFAN[®])**: is no longer commercially available in Belgium and is no longer recommended as stand-by treatment for malaria!

- **Mefloquine (LARIAM[®])**

The World Health Organisation advises the following dosage for an **adult** who takes Lariam[®] as emergency treatment on his own initiative: 2 tablets of 250 mg, followed by 2 tablets of 250 mg after 8 hours. This dosage is lower than the one mentioned in the instructions! It is adjusted because Lariam[®] (in treatment level dosage) often has unpleasant side effects (gastro-intestinal discomfort, dizziness, anxiety, heart palpitations, nightmares and insomnia), that sometimes are very pronounced and cause the already ill person to panic. These side effects should occur less frequently with a reduced dosage. **In our opinion, there are enough reasons not to take Lariam[®] as self-medication when no adequate medical support is possible.**