

# Prophylaxis of Malaria

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## Introduction

Travelling to a malaria endemic zone is becoming more of a problem to health authorities because of the great amount of developed resistance by the Plasmodium parasite to the known and established prophylactic antimalarial drugs. The problem is greatest with travellers who have never been exposed to the parasite before and therefore have no natural immunity against the disease. For practical purposes the problem of drug resistance is confined to Plasmodium falciparum which causes the greatest mortality of all other strains. P. falciparum has developed resistance to Proguanil, Cycloguanil, Pyrimethamine, and Chloroquine. The growth of resistance can be attributed to the selection of existing resistant mutants through drug pressure since antimalarials are now widely available. Various drugs have been advocated for the prophylaxis of Malaria.

## 4-Aminoquinolines (Chloroquine, Amodiaquine)

These drugs are not effective against the sporozoites injected by the anopheline mosquito but act on the erythrocytic form of the parasite causing its destruction. This is called suppressive prophylaxis. These drugs should be started, a week before intended entry into a Malaria zone, in doses of:

- Chloroquine — 600 mg weekly for the first six weeks\*
- 300 mg weekly thereafter
- Amodiaquine — 600 mg weekly for the first eight weeks\*
- 400 mg weekly thereafter.

## 8-Aminoquinolines (Primaquine)

These drugs act on the hepatic form of the parasite. However, they have proved to be too toxic for long term prophylactic use and should **not** be used.

## Antifolates (Proguanil, Pyrimethamine)

These destroy the pre-erythrocytic stage of Plasmodium falciparum and erythrocytic forms of other species of Malaria. Due to the great amount of resistance now present they are often combined with sulphonamides and sulfones which form a synergistic combination with pyrimethamine. They should all be started on entry into a Malarial zone.

- Pyrimethamine — 25 mg once weekly.
- Proguanil — 100 mg once daily  
(There is less tissue binding with this drug.)
- Pyrimethamine — 12.5 mg
- +  
diaminodiphenyl sulphone } one tablet weekly\*\*  
(Dapsone) — 100 mg
- Pyrimethamine — 25 mg
- +  
Sulphadoxine — 500 mg } one tablet weekly\*\*

The above drug combinations are marketed as Maloprim and Fansidar respectively.

All drugs are to be continued up to six weeks after leaving the Malarial zone to destroy forms being given out from the liver cycle. This sometimes exceeds six weeks, so awareness to this fact is important.

## Course to follow

This, of course, depends on the country which the traveller intends to visit and on the prescribing doctor's own experience. It would be very unwise to prescribe Chloroquine only (which seems to be the standard practice in Malta) in areas where there is known chloroquine resistance (South East Asia, Central and South America, and Central and East Africa).

Consequently, it would be best to give *both* Chloroquine *and either* Maloprim *or* Fansidar. The latter combination is said to be more effective. Unfortunately resistance to chloroquine and pyrimethamine frequently co-exists (Chloroquine and Proguanil can also be given together).

Maloprim, Fansidar or Proguanil can also be given alone but again due to the high resistance developing this would be unwise. Some authorities maintain that due to the high resistance developing to Chloroquine one should not use a combination of Chloroquine plus something else but rather a single drug such as Proguanil, so that if Malaria does develop it will not be resistant to Chloroquine which is the drug of choice in treatment of the acute case. There are three types of resistance (vide **Chemotherapy of Malaria**). However, since other drugs are available to treat Chloroquine-resistant Malaria, I think that combination prophylaxis is the best solution.

On reading this article one might think that it would be just as well taking nothing at all. This is far removed from the truth and it would be sheer folly and a grave mistake to miss out on prophylaxis of whatever form.

### Other forms of prevention

These are really common sense but go a long way in keeping the disease away.

- (1) Use some form of insect or mosquito repellent.
- (2) Use insecticidal spray (Flit) or mosquito coils around your habitat when possible.
- (3) Sleep under a mosquito net.
- (4) Keep your body well covered (arms and legs) especially in the evenings and nights when most mosquitoes come out to feed, or under the shade of trees.
- (5) By next year, a vaccine against Malaria should be launched on the market. Hopefully it will be effective notwithstanding the large degree of variant antigenic forms of the parasite. If successful this vaccine could rid the world of one of the most threatening killers.
- (6) In pregnancy all the above drugs are safe and should be prescribed in endemic areas to prevent abortion from parasitisation of the maternal side of the placenta or the rare congenital Malaria. Folate supplements are usually needed.

### References:

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\*This early loading dose of the drug is advocated by some authorities for prophylactic purposes but other authorities do not recommend it.

\*\* Some authorities prefer one tablet twice weekly but many others maintain that this dose is too toxic even though the blood levels may not be effectively high towards the end of the week.