

## Uncomplicated Plasmodium Falciparum Malaria Treatment in India

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### Abstract

**Background:** Uncomplicated *P. falciparum* Malaria treatment in India is a complex issue because different regimes exist for the North-eastern part of the country and the rest of the country. Moreover, different drugs are needed for the treatment of pregnant patients.

**Objectives:** To find out what are the antimalarials prescribed in India for treating uncomplicated Falciparum Malaria.

**Methods:** By reviewing documents prepared by NVBDCP.

**Results:** It is found that different regimes exist for treating uncomplicated Falciparum Malaria depending on where the patient comes from and the pregnancy status of the female patient.

**Conclusions:** More education is required among health care providers on how to treat uncomplicated *P. falciparum* Malaria. This paper addresses this concern.

**Keywords:** Malaria, *Plasmodium falciparum*, Artemisinin Combination Therapy, Primaquine, Quinine

### Introduction

Treatment of Malaria depends on the species of Plasmodium causing it and is by giving Artemisinin-based Combination Therapy (ACT) and Primaquine. However, the type of ACT used depends on where the patient lives. If the patient resides in any part of the country except the North-

East, he/she is treated with an ACT consisting of three days treatment with Artesunate and one-day treatment with Sulphadoxine-Pyrimethamine (SP). If the patient resides in the North-East, he/she is treated with Artemether and Lumefantrine for three days because drug resistance to SP was observed in the North-East and so Lumefantrine replaced SP in these areas.<sup>1</sup>

## Material and Methods

The study design included analysis of the documents of the NVBDCP pertaining to treating uncomplicated *P. falciparum* Malaria.

## Results

I. The country's Drug Policy on Malaria 2013 dealt with treating uncomplicated *P. falciparum* Malaria under two broad categories:<sup>2</sup>

A. A. Treatment in those States other than the North-Eastern States:

Here, the ACT used consists of the following drugs in the given dosages:

1. Artesunate: 4mg/kg body wt. daily for three days PLUS
2. SP consisting of 25 milligrams per kilogram

body wt. Sulfadoxine plus 1.25 milligrams per kilogram body wt. Pyrimethamine on Day One.

In addition, 0.75 milligrams per kilogram body wt. Primaquine is given on the second day. The function of Primaquine is to kill the gametocytes.

**Note:** (a) SP not to be prescribed for children under the age of 5 months. In such cases, they should be given an ACT not containing SP.

(b) The above ACT is not to be given during the first trimester of pregnancy. Instead, in the first trimester, Quinine salt is to be given at 10 mg per kg body wt. TDS for seven days. During the second and third trimesters, the above ACT can be given. However, Primaquine is not to be given in any trimester.

B. Treatment in the North-Eastern States:

Here, the ACT used consists of the following drugs in the given dosages:

Artemether-Lumefantrine prescribed as per body weight:

5 kilograms to 14 kilograms	20 mg Artemether plus Lumefantrine 120 mg BD X 3 days
15 kilograms to 24 kilograms	40 mg Artemether plus Lumefantrine 240 mg BD X 3 days
25 kilograms to 34 kilograms	60 mg Artemether plus Lumefantrine 360 mg BD X 3 days
35 kilograms & above	80 mg Artemether plus Lumefantrine 480 mg BD X 3 days

In addition, Primaquine is given at 0.75 mg per kg body wt. on the Second day.

**Note:** (a) Artemether-Lumefantrine is not to be given to children weighing less than 5 kilograms.

(b) The above ACT is not to be given during the first trimester of pregnancy. Instead, in the first trimester, Quinine salt is to be given at 10 mg per kg body wt. TDS for seven days. During the second and third trimesters, the above ACT can be given. However, Primaquine is not to be given in any trimester.

II. The 2014 guidelines for diagnosis and treatment of Malaria covered treating uncomplicated *P. falciparum* Malaria in the same way as was done by the National Drug Policy on Malaria 2013 given above.<sup>1</sup>

III. The operational document on Malaria Elimination in India, published in 2016, also covered treating uncomplicated *P. falciparum* Malaria in the same way as was done by the National Drug Policy on Malaria 2013 given above.<sup>3</sup>

## Discussion

The Government of India, in 2016, adopted a framework for Malaria Elimination in India covering the period 2016 - 2030.<sup>4</sup> This was based on WHO's Global Technical Strategy for Malaria, covering the same period, adopted in 2015 and updated in 2021.<sup>5</sup>

The aim is to reach no Malaria cases by 2027 and then wait for three years before WHO can grant Malaria-free status certification. It is already the beginning of 2022 and India is about to reach the halfway mark of this period from 2016 to 2027. The Annual Parasite Incidence (API) has also come down significantly (it was 0.32 during 2018<sup>6</sup>),

## Conclusion

If a medical practitioner, whether in government service or in private practice, comes across an uncomplicated case of *P. falciparum* Malaria, he/she can manage the patient using the drugs at the dosages recommended above. This will be a step towards reaching the target of zero Malaria cases in the country by 2027.

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