Commentary
Volume 10:6, 2021
DOI: 10.37421/mcce.2021.10.171

Malaria Control & Elimination

ISSN: 2470-6965 **Open Access**

Natural Treatment of Malaria Control

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Commentary

Malaria may be a life-threatening disease caused by five parasite species of the genus Plasmodium transmitted by female Anopheles mosquitoes. The single celled organisms cannot survive outside of their hosts. The parasites multiply within the liver and therefore the bloodstream of the infected person. The five Plasmodium species are:

Plasmodium falciparum: liable for the bulk of malaria deaths globally and is that the most prevalent species in Sub-Saharan Africa. The remaining species are not typically as life threatening as the first one.

Plasmodium vivax is prevalent in Southeast Asia and Latin America. *Plasmodium ovale* and *Plasmodium malariae* represent only alittle percentage of infections. Plasmodium knowlesi – species infecting primates – has led to human malaria, but the mode of transmission remains unclear.

A person with malaria may have one or more of the subsequent symptoms: Fever, (sweating, feeling cold and shivering) which can come and go, Headache, Pain within the joints Loss of appetite, Vomiting, Diarrhoea, Convulsions (fits), Anaemia, *Plasmodium falciparum* may cause cerebral malaria, a serious complication resulting from inflammation of the brain that may cause coma.

Malaria is diagnosed by a blood test. Sometimes it's necessary to repeat the test variety of times, because the parasites are often difficult to detect.

Type of tests: all suspected malaria cases should be tested using Blood smear or Rapid diagnostic test Incubation period (time between becoming infected and developing symptoms) varies with the type:

P. falciparum: 9 to 14 days, *P. vivax*: 12 to18 days but some strains may have a time period of 8 to 10 months or longer, P. ovale: 12 to 18 days, *P. malariae*: 18 to 40 days, P. knowlesi: 9 to 12 days, Malaria occurs in most tropical and sub-tropical areas of the world, including: Africa, Central and South America, Asia (including Southeast Asia), Papua New Guinea, Western Pacific islands.

From 2005 to 2011, Rwanda achieved significant reductions in the burden of malaria through the successful implementation and scale-up of malaria control interventions. In a survey conducted in 2005, malaria was the number one aetiology for morbidity of children under age five (P MI, 2018). In 2008, malaria dropped to the number three cause of morbidity, and by 2012 dropped further to number four for children under age five years of age. According to data provided by the Rwanda HMIS, overall malaria incidence declined 86% between 2005 and 2011; outpatient malaria cases declined 87%; inpatient malaria deaths declined 74%; and malaria test positivity rate (TPR) declined 71%. According to the 2010 Rwanda Demographic and Health Survey (DHS), malaria prevalence decreased from 2.6% in 2008 to 1.4% in 2010 in children less than five years of age. Over 95% of total reported malaria cases are laboratory confirmed (PMI, 2018).

However, Rwanda was quite an 8-fold increase in reported malaria cases, from 567,407 in 2012 to 4,794,778 in 2016 (PMI, 2018). Increases in malaria cases were observed altogether 30 districts. Ten districts, primarily in the Eastern and Southern regions, had the largest increases in malaria cases. The number of cases tripled within the Eastern province (from 460,460 in 2013–2014 to 1.4 million in 2015– 2016), and doubled within the Southern province (from 554,035 in 2013–2014 to over 1.1 million in 2015– 2016). Additionally, the DHS 2014–2015 revealed a rise of malaria prevalence among children but five years aged (from 1.4% in 2010 to 2.2%) and stable prevalence among women aged 15–49 years (from 0.7 % in 2010 to 0.6%) ((NISR), (MOH), 2015). According to preliminary analysis conducted by the Malaria and Other Parasitic Disease Division (MOPDD), the overwhelming majority of this increase is among persons over five years aged. An increase in malaria-related deaths was also reported from 419 in 2013 to 715 in 2016, but the overall case fatality rate was reported to decrease from 1.8% to 1.5% during this same period (PMI, 2018).

Antimalarial treatment must always be started as soon as malaria is diagnosed. Artemisinin Combination Therapies (ACTs) are the most effective WHO recommended treatment of uncomplicated malaria caused by the P. falciparum parasite. The treatment is predicated on 2 active ingredients with different mechanisms of action. Currently there are 5 ACTs, based on different classes of drugs (WHO, 2015).

After parasitological confirmation of diagnosis with either microscopy or rapid diagnostic assay , the patient can take antimalarial treatment.

Treatment of uncomplicated P. falciparum malaria a confirmed case of malaria is treated with the following ACTs:

Artemether+lumefantrine, Artesunate + amodiaquine, Artesunate + mefloquine, Dihydroartemisinin + piparaquine, Artesunatepyrimethamine (SP)

The treatment lasts 3 days. The most used ACT in Rwanda is named Coartem. Coartem tablets contain a hard and fast combination of two antimalarial active ingredients, artemether, an artemisinin derivative, and lumefantrine.

Treatment of severe malaria: Patients with severe malaria are treated with intravenous or intramuscular Artesunate for at least 24 hours and until they can tolerate oral medication. Once a patient has received a minimum of 24 hours of parenteral therapy and may tolerate oral therapy, complete treatment with 3 days of ACT (add single dose primaquine in areas of low transmission)(WHO, 2015).

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Received 03 November 2021; **Accepted** 17 November 2021; **Published** 24 November 2021

How to cite this article: Cynthia K. Lee. "Natural Treatment of Malaria Control." *Malar Contr Elimination* 10 (2021): 171.