International Standard Serial Number (ISSN): 2249-6807

International Journal of Institutional Pharmacy and Life Sciences 10(6): November-December 2020

INTERNATIONAL JOURNAL OF INSTITUTIONAL PHARMACY AND LIFE SCIENCES

Pharmaceutical Sciences

Review Article……!!!

Received: 13-10-2020; Revised: 31-10-2020; Accepted: 01-11-2020

A REVIEW ON EFFECTIVE TREATMENT AND DIAGNOSIS OF MALARIA DISEASE

Pallavi B. Gholap, Kiran C. Mahajan

Sharadchandra Pawar College of Pharmacy, Pune, Maharashtra, India.

Keywords:

Malaria, *P. falciparum*, Malaria cycle

For Correspondence:

Pallavi B. Gholap

Sharadchandra Pawar College of Pharmacy, Pune, Maharashtra, India.

E-mail:

gholappallavi1996@gmail.com

ABSTRACT

Malaria is an infectious disease transmitted in human through mosquito bites. Malaria is developed in many countries such as Asia, Africa and America etc. It is a major problem in third-world countries, with hundreds of millions of infections and millions of fatalities annually. These parasites have a complex life cycle in their mosquito vector and vertebrate hosts. The primary factors contributing to the resurgence of malaria are the appearance of drug-resistant strains of the parasite, the spread of insecticide-resistant strains of the mosquito and the lack of licensed malaria vaccines of proven efficacy. This review includes a summary of the disease, the life cycle of the parasite, information relating to the genome and proteome of the species lethal to humans, *Plasmodium falciparum*, together with other recent developments in the field.

What is Malaria

Malaria may be a mosquito-borne communicable disease caused by various species of the parasitic protozoan microorganisms called Plasmodium. Malaria may be a disease that man has battled with for an extended time. The first evidence of this protozoan came from mosquitoes preserved in amber nearly 30 million years ago.

Malaria was so prevalent during the roman times that the disease is additionally called 'Roman Fever'. The discovery of this parasite by Charles Louis Alphonse Laveran, a French physician. He won the Nobel Prize in 1907 for his findings. [1]

Only the Anopheles species of mosquito can transmit malaria and mosquitoes take the parasite from biting a person already infected with illness. People with malaria get very sick and a high fever, teeth-rattling chills and muscle aches.

Malaria is very rare in the United States, where about 1700 cases and five deaths occur each year, mostly in immigrants and travelers returning from countries where the disease is common according to the Centers for Disease Control and Prevention.

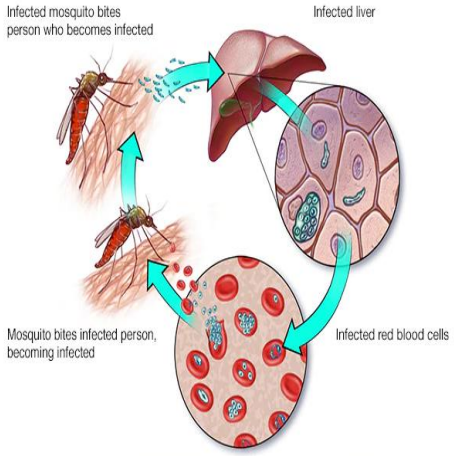
In many developing countries malaria is a leading cause of death and disease, where children under age 5 and pregnant women are the hardest groups. In 2017, there were 219 millions cases of malaria overall world and about 435000 deaths, according to World Health Organization (WHO). [2]

Common areas include Africa south of the Sahara desert, Southeast Asia, Central and South America, Haiti and the Dominican Republic, Eastern Europe and the South Pacific, according to the American Academy of Family Physicians. Its difficult to control malaria worldwide because parasites tend to stay in our bodies and the immune system is not very effective at clearing them, said Dr. Edward Ryan, director of global infectious diseases at Massachusetts General Hospital in Boston. [2]

CAUSES [3-8]

Malaria is caused by a type of microscopic parasite. The parasite is transmitted to humans most commonly through mosquito bites.

Human malaria is caused by four different species of Plasmodium: *P.falciparum, P.malariae, P.ovale and P.vivax*.



- **Uninfected mosquito:** A mosquito becomes infected by feeding on an individual who has malaria.
- **Transmission of parasite:** If this mosquito bites you within the future, it can transmit malaria parasites to you.
- **In the liver:** Once the parasites enter your body, they travel to your liver.
- **Into the bloodstream:** When the parasites mature they leave the liver and infect your red blood cells. This is when people typically develop malaria symptoms.
- **On to succeeding person:** If an uninfected mosquito bites you at this time within the cycle, it'll become infected along with your malaria parasites and might spread them to the other people it bites.

Other modes of transmission

Because the parasites that cause malaria affect red blood cells, people also catch malaria from exposure to infected blood include:

- From mother to unborn child.
- Through blood transfusions .
- By sharing needles used to inject drugs.

Sign And Symptoms: [3-8]

- Fever
- Chills
- Headache
- Nausea and vomiting
- Muscle pain and fatigue
- Sweating
- Chest or abdominal pain
- Cough

Side Effects

Nausea, vomiting, abdominal pain, headache, insomnia, Dizziness, loss of balance.

Rare side effects:

- Acute anxiety
- Depression
- Restlessness
- Confusion
- Severe dizziness
- Hallucinations

Diagnosis: [3-8]

To diagnose malaria, doctor will review your medical history, conduct a physical exam and blood tests. Blood test are the only used to confirm a malaria diagnosis.

- Blood test can help doctor by showing
- The presence of parasite in the blood ,to confirm that you have malaria
- Which type of Plasmodium vivax is causing your symptoms
- If your infection is caused by a parasite proof against certain drugs

Treatment: [3-8,10]

Malaria is treated with pharmaceuticals to kill the parasite. The types of drugs and the length of treatment will vary depending on:

- Which type of sporozoan you have got
- The severity of your symptoms
- Your age
- Whether you're pregnant

Common antimalarial drugs include:

- Combination of atovaquone and proguanil (Malarone)
- Quinine sulfate (Qualaquin) with doxycycline (Vibramycin,Monodox)
- Mefloquine
- Primaquine phosphate

CONCLUSION:

Malaria is mosquito borne communicable disease which is caused by different species of parasitic protozoan microorganism. Common areas where the malaria occurred include African nation of desert, geographic region, Central and South America, Eastern Europe. Human malaria is caused by four different species of Plasmodium: *P. falciparum, P. ovale, P. malariae, P. vivax*. There are some sign and symptoms like fever, headache, nausea and vomiting etc. Malaria is diagnosed by some physical exam and biopsy . Malaria is treated with differing kinds of medication to kill the parasite and these drugs depends on forms of patient, age, symptoms.

REFRENCES:

[1] https://byjus.com,Biology Article Common Diseases In Human Malaria.

[2] https://www.livescience .com

[3] As May Expert.Malaria. Rochester,Minn: Mayo Foundation for Medical Education and Research;2018.

[4] Jameson JL,et al. eds.Malaria.In:Harrisons Principles of Internal Medicines. 20thed. New York,N.Y.: The McGraw-Hill Companies; 2018. htttps:// accessmedicines.Mhmedical.com.Accessed Oct.9,2018.

[5] TintinallijJ.E,et al.,eds.Malaria.In: Tintinallis Emergency Medicines: A Comprehensive Study Guide.8th ed.New York,N.Y,: McGraw-Hill Education;2016. http://www.accessmedicine.mhmedical.com. Accesssed Oct.9,2018.

[6] Malaria.Merck Manual Professional Version. http://www. merckmanuals. com/ professional/infectious diseases/extraintestinal-protozoa /malaria. Accesssed Oct.9,2018.

[7] Malaria. World Health Organization. https://www.who.int/ malaria/ en/. Accessed Oct.9,2018.

[8] Malaria. Centers for Disease Control and Prevention. http://wwwnc.cdc.gov/ travel/ diseases/malaria.Accesssed Nov.6,2015.

[9] http://www.drugs.com.

[10] Breman J.G. Clinical manifestations of malaria in nonpregnant adults and children's. Http://www.uptodate.com/contents/search. Accesssed Oct.9,2018.

TABLE1: LIST OF MEDICATIONS USED IN MALARIA [9]

Sr. No.	Name of drug	Generic Name	Brand Name	Drug class
1	Artemether/ Lumefantrine	Artemether/ Lumefantrine Systemic	Coartem	Antimalarial combinations
2	Coartem	Artemether/ Lumefantrine Systemic		Antimalarial combinations
3	Malarone	Atovaquone/Proguanil Systemic		Antimalarial combinations
4	Mefloquine	Mefloquine Systemic	Lariam	Antimalarial Quinolines
5	Doxycycline	Doxycycline Systemic	Doxy 100,Doryx,Monodox	Tetracyclines, miscellaneous antimalarials
6	Plaquenil	Hydroxychloroquine Systemic		Antirhematics,antimalarialquinolines
7	Chloroquine	Chloroquine Systemic		Amebicides,AntimalarialQuinolines
8	Hydroxychloroquine	Hydroxychloroquine Systemic	Plaquenil	Antirhematics,antimalarialquinolines
9	Atovaquone/Proguanil	Atovaquone/Proguanil Systemic	Malarone, Malarone Pediatric	Antimalarial combinations
10	Clindomycin	Clindomycin Systemic	Cleocin,Cleocin HCL, Cleocin Pediatric	Lincomycin Derivatives
11	Doxy 100	Doxycycline Systemic		Tetracyclines, miscellaneous antimalarials
12	Primaquine	Primaquine Systemic		Antimalarial Quinolines
13	Atovaquone	Atovaquone Systemic	Mepron	Micellineous Antibiotics
14	Lariam	Mefloquine Systemic		Antimalarial Quinolines

HOW TO CITE THIS ARTICLE

Pallavi B. Gholap, Kiran C. Mahajan. A Review on Effective Treatment and Diagnosis of Malaria Disease. International Journal of Institutional Pharmacy and Life Sciences, Vol 10[6] November-December 2020 : 08-12.