

Causes and Drugs Involved in the Treatment of Malaria

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DESCRIPTION

Malaria is a parasitic disease caused by the *Plasmodium* parasite and transmitted by the bite of infected female Anopheles mosquitoes. It is one of the deadliest diseases in the world, with approximately 200 million cases and 400,000 deaths annually, mostly in Sub-Saharan Africa. The burden of malaria falls disproportionately on children under five years of age and pregnant women.

Causes

The main causes of malaria include:

- Mosquito bites: The primary mode of transmission of malaria is through the bites of infected female Anopheles mosquitoes.
- Blood transfusions: Malaria can be transmitted through infected blood transfusions or organ transplants.
- Mother-to-child transmission: Malaria can be transmitted from a mother to her unborn child during pregnancy, delivery, or through breastfeeding.
- Sharing needles: People who inject drugs can transmit malaria through sharing needles contaminated with infected blood.

Drugs involved in the treatment

The treatment of malaria involves the use of drugs that kill the parasites in the bloodstream and prevent the development of the disease. The choice of drug depends on the species of *Plasmodium* parasite, the severity of the disease, and the age and health status of the patient. Some of the commonly used drugs in the treatment of malaria are artemisinin-based combination therapies (ACTs), chloroquine, and quinine.

Artemisinin-based combination therapies (ACTs) are the most effective drugs for the treatment of malaria. They are a combination of artemisinin and a co-drug that has a longer half-life and helps to prevent the development of drug resistance. Artemisinin is derived from the sweet wormwood plant and has been used in traditional Chinese medicine for centuries. It is highly effective at killing the parasites in the bloodstream and has a rapid onset of action. The co-drugs used in ACTs include piperazine, mefloquine, and lumefantrine. These drugs have a

longer half-life and help to clear the remaining parasites from the body.

Chloroquine was the first drug used in the treatment of malaria and was widely used in the 20th century. It works by preventing the parasites from replicating in the red blood cells. However, the widespread use of chloroquine has led to the development of drug-resistant strains of *Plasmodium falciparum*, the most deadly species of the parasite. Chloroquine is still used in the treatment of malaria in some parts of the world where the parasite is still sensitive to the drug.

Quinine is an older drug used in the treatment of malaria. It is derived from the bark of the cinchona tree and has been used for centuries. Quinine works by preventing the parasites from replicating in the red blood cells. It is effective against all species of *Plasmodium* parasites and is still used in the treatment of severe malaria. However, quinine can cause side effects such as cinchonism, which can cause tinnitus, dizziness, and blurred vision.

The use of drugs in the treatment of malaria has led to the development of drug-resistant strains of the parasite. The most deadly species of the parasite, *Plasmodium falciparum*, has developed resistance to all the drugs that have been used in the past. This has led to the development of new drugs such as artemisinin-based combination therapies (ACTs). However, there are concerns that the parasite may develop resistance to these drugs as well.

To combat the development of drug-resistant strains of the parasite, it is essential to use drugs in combination and rotate the use of drugs in different regions. This helps to prevent the parasites from developing resistance to the drugs. In addition, there is a need to develop new drugs and vaccines to combat the disease.

CONCLUSION

In conclusion, drugs are an essential component of the treatment of malaria. Artemisinin-based combination therapies (ACTs) are currently the most effective drugs in the treatment of malaria. However, the development of drug-resistant strains of the parasite is a major concern. To combat the development of

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Received: 10-Mar-2023, Manuscript No. EOED-23-22665; **Editor assigned:** 13-Mar-2023, PreQC No. EOED-23-22665 (PQ); **Reviewed:** 27-Mar-2023, QC No. EOED-23-22665; **Revised:** 03-Apr-2023, Manuscript No. EOED-23-22665 (R); **Published:** 10-Apr-2023, DOI: 10.35248/2329-6631.23.12.189

Citation: Yin W (2023) Causes and Drugs Involved in the Treatment of Malaria. J Develop Drugs. 12:189.

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drug-resistant strains, it is essential to use drugs in combination and rotate the use of drugs in different regions. In addition, there is a need to develop new drugs and vaccines to combat the

disease. The fight against malaria is on-going, and it is essential to continue to invest in research.