



More than 30 years of dedicated and complete approach to combat Malaria



How mosquito bites affect us

The maxim of prevention being better than cure applies perfectly to dengue and malaria during the monsoon season

Vijay Pandya

Do you know how malaria actually occurs? The female Anopheles mosquito injects a plasmodium parasite, usually in the twilight hours (from about an hour before sunset right through to an hour after dawn). There are four types of plasmodium: falciparum, vivax, ovale, and malariae. Malaria comes in four different 'models', falciparum being the most feared one. These days, there is a visible rise in vivax cases also.

The parasite enters your bloodstream and destroys red blood cells and affects the liver, kidneys, spleen and other organs. Malaria strikes within at least eight days and often, much longer after that fateful bite.

Death can occur from cerebral malaria, when the plasmodium arrives to the brain causing in-



flammation of the brain tissue, meningitis. Severe anaemia and kidney impairment can also lead to death. The symptoms of malaria are chills, followed by a high fever and sweating.

Typically, malaria produces fever, headache, vomiting and other flu-like symptoms. Bloody urine may also be present. Jaundice and anaemia can also be signs of malaria.

If drugs are not available for treatment or the parasites are resistant to them, the infection can progress rapidly to become life-threatening. Malaria can kill by

infecting and destroying red blood cells (anaemia) and by clogging the capillaries that carry blood to the brain (cerebral malaria) or other vital organs.

Malaria is diagnosed when plasmodium are present in the blood film. Remember, a negative blood slide does not necessarily mean you don't have malaria. It could be that no 'blood forms' were present.

Similarly, dengue viruses are transmitted to humans through the bites of infective female Aedes mosquitoes. Mosquitoes generally acquire the virus while



feeding on the blood of an infected person. The resultant problem created is at two levels, Dengue fever and Dengue haemorrhagic fever (DHF).

A rapid rise in urban populations is bringing ever greater numbers of people into areas that are favourable for mosquito breeding, e.g. where household water storage is common and where solid waste disposal services are inadequate.

Malaria remains a major public health threat, particularly in urban areas like Mumbai. It has generally been considered as a

disease of rural areas, but many factors linked to a rapid and uncontrolled urbanization are increasing malaria transmission in cities across the globe.

The expansion of malaria transmission to urban areas is of particular concern to malaria control programs since populations in these areas are likely to be at higher risk of the development of severe malaria due to the lack of protective immunity. According to the WHO, 40% of the world's population is exposed to malaria, a deadly disease that is both preventable and treatable.

Did you know?

- Most cases of severe malaria are caused by P. falciparum due to its ability to infect red blood cells of all ages and chloroquine resistance?
- Severe cases due to P. vivax are also on the rise?
- Resistance to anti-malarial drugs is mostly visible in P. falciparum and P. vivax?
- That the most common malaria symptom is recurring episodes of high fever with gaps in between when the patient experiences no fever and feels cured?
- Key indicative symptoms include shivering or chills (the sensation of feeling uncomfortable while being in a breeze or under the fan), sweating (sometimes excessively)?
- Patients may also experience headaches, body ache with varying severity levels and a general sluggishness or feeling constantly tired/lethargic?
- Feeling nauseous or being mildly delirious, experiencing abdominal discomfort may also occur?
- Some of the infectious diseases with symptoms similar to malaria include influenza, typhoid fever, dengue fever, leptospirosis?
- Blood smear test for malaria should be done preferably at the time of fever episode?
- Treatment solely on the basis of clinical suspicion should only be considered when a parasitological diagnosis is not accessible?
- Given the variety of symptoms, patients with fever in a malaria endemic area should visit the doctor at once?
- Complications of P. falciparum malaria may occur with infants or the elderly, pregnant women, patients on steroids or pre-existing organ failure?
- Those who get infected often by malaria or those residing in such areas can develop anaemia? Severe anaemia is mostly visible in cases of P. falciparum?
- Anti-malarial drugs attack the parasite at its various stages of life cycle in the human body? The doctor should be informed in the absence of improvement after 48 hours or if the situation deteriorates?
- Those who have undergone malaria once may have a relapse?

Combating malaria with nature's pure remedy

Extracts from Ipca's self-cultivated Artemisia annua, the source of Artemisinin using an innovative process, ensures best of quality medication for treating patients

Dr. D C Jain

Even though this disease has been known for centuries we are yet to receive a vaccine for Malaria. The evolution of mosquitoes and their increasing resistance to known drugs is a constant cause of concern. Anti-Malarial drugs can stem the development of malarial parasites in the blood thereby suppressing the disease.

P. falciparum malaria needs immediate medical attention as it can be potentially fatal. This strain has very high mortality rates and initial diagnosis may be complicated so people living in high risk areas should consult their doctors as soon as symptoms appear and assess if there is a need for Anti Malarial drugs.

Resistance to chloroquine and other anti-malarial drugs is spreading, so preventive (prophylactic) medicines that were effective five years ago may no longer be so. The geographic spread of chloroquine resistance in the malarial parasite Plasmodium falciparum is increasing. It exists throughout sub-Saharan Africa, Southeast Asia, the Indian subcontinent and large portions of South America. This is why it is essential to opt for the modern medicines in the present scenario.

The 'Target Malaria' initiative by Ipca is a step towards its commitment to combat the menace of malaria. The endeavour is to have the highest standards right from the stage of sowing to the finished formulation that shall ensure the recovery of patients with best of quality medications from the house of Ipca.

Artemisia annua, the source of Artemisinin, is a plant that holds high promise for future. Due to the worldwide shortage of the plant and its derivatives, the full potential of this powerful medication could not be fully exploited for fighting malaria.

Ipca took up the responsibility of rising to the occasion through its cultivation initiatives. The first success with Artemisia annua leaf cultivation was achieved in the year 2001, done on an experimental basis. Ipca has now taken a giant step to self reliance by cultivating A.annua over 2300 acres across 7 states in India.

The journey of almost a decade of gathering expertise in cultivation of A.annua has led to



Ipca developing plant varieties that are high in biomass (foliage), increased yield of Artemisinin per plant and an indigenously developed, unique 4 step extraction process, enables it to extract Artemisinin of high purity from A.annua plant.

Ipca produces the largest quantity of seeds in the world with germination rate of >90%, which is the best in the world. Seeds costing Rs 50000 per kg, along with free transportation, have been given free to farmers for them to encourage them to undertake farming of A. Annua.

Continuous Agro-R&D is being done by Ipca. With spacing experimentation, techniques of right spacing between plant to plant and between each row, Ipca has been successful at increasing the biomass by almost 3 times than the older norms.

Finding out exact combination and dose of fertilizers for different terrains has played an important role. With extensive study of soil requirement of different topographies, Ipca has

arrived at addition of various micronutrients and growth hormones to further increase yield. Ipca has also developed unique techniques to ensure long term storage and maintenance of AMS contents.

The company is striving hard to further improve the Artemisinin output through unremitting work on indigenous techniques and collaboration with foreign authorities. It has collaboration with CNAP department of York University, UK, to arrive at the most suitable variety of A.annua for Indian climatic conditions.

Prevention is better than cure

Pooja Vora

There are efforts to raise awareness about the severity of malaria and the benefits of taking preventive action. To get this message to those communities at risk, one must involve employees and their families, customers, and local communities in order to effectively spread the word about the dangers of malaria and the practices and resources available to prevent it. Despite the availability of prevention information and resources, human behaviour continues to be a primary obstacle in preventing the disease.

Malaria is preventable and curable if procedures are followed correctly, but often the involvement of human behavior can derail even the most effective tools and procedures. People tend to forget about the dangers of malaria; thus, ongoing awareness about its prevention and treatment is vital.

There are several ways in which you can protect your family members from the mosquito menace.

Use mosquito coils or an electric mosquito killer during the evening and throughout the night. Ideally opt for branded products, which can operate in more than one mode. This way, you can opt for either 'normal' or 'high' mode depending on the severity of the mosquito attack.

The best way to prevent malaria is to take special precautions to avoid contact with mosquitoes. Install mosquito screens at all the openings of your house like windows and doors. If you have the luxury of air conditioning,



use it! Air-conditioning means that the room is largely sealed and too cold for mosquitoes to enter.

Repellent creams and/or mosquito nets are a traditional solution used by many families. Just ensure that the net is big enough to be tucked under your mattress or extends all the way to the floor. Get a mosquito net that is closest to the shape of your bed, usually square.

Forget About Black Chic. Dark colours attract mosquitoes, so make sure all of your clothing is light coloured. Cover Up, wear long-sleeved shirts and long pants. Tuck Toes Away, avoid sandals and instead wear shoes that cover the entire foot.

Above all, keep in mind there is no evidence that electronic buzzers or garlic deter mosquito bites. As anyone who has been afflicted with malaria or dengue will readily attest, prevention is indeed a much better option than cure where the mosquito menace is concerned.

