



WORLD MALARIA DAY – 25TH APRIL 2015

Malaria is a vector-borne infectious disease that is caused by mosquito-borne plasmodium parasite which infects the red blood cells and quite common during monsoons. As stagnant water provides a breeding space mosquitoes and thus, increase your risk of getting infected with the Plasmodium parasite. Which is transmitted through bites of infected mosquitoes. In the human body, the parasites grow in liver and then infect red blood cells. Malaria is transmitted by an infected female Anopheles mosquito. There has been a significant increase in the number of people suffering from malaria every year due to lack of proper awareness. It's one of the deadliest diseases in India. There's no vaccine for malaria yet and immunity occurs naturally through repeated infection.

Condition of Malaria in India

UNICEF says that in India, of the 1.2 billion people, 80.5 per cent reside in malaria-prone areas. According to researcher In India, 22 per cent population lives in areas with high transmission and approximately 30 per cent of disease burden is reported from children."

With such huge figures, India has a big task before it - to get free of malaria by 2015. Malaria is the deadliest of all vector-borne diseases. About 10 per cent of the total cases of malaria are reported from urban areas. Maximum numbers of malaria cases are reported from places like Chennai, Vishakhapatnam, Vadodara, Kolkata, New Mumbai, and Vijayawada.

Today, malaria in urban areas is a big problem due to unplanned expansion of cities and towns. A surge in construction in cities has led to migration of workers to cities, causing problems in sanitation and water storage in slums. All these lead to spread of mosquitoes which transmit malaria.

As per details on National Institute of Malaria Research website, North-eastern states (mostly Assam, Arunachal Pradesh, Meghalaya, Tripura), tribal and forested parts of Odisha, Jharkhand, Chhattisgarh, Madhya Pradesh, Maharashtra, Andhra Pradesh, West Bengal and few districts in Karnataka and Gujarat report high malaria burden.

Initiatives by Indian Government to Tackle Malaria

When the government launched the National Malaria Eradication Programme in 1958, Urban Malaria was not a part of it. But by 1970s, the government found out that cases of rural malaria came down while cases in urban areas went up. It was then that the government started Urban Malaria Scheme in 1971.

The Government is also taking steps to provide mosquito nets, medicines, etc. to people in order to stop malaria from spreading. It is also spraying DDT to kill the deadly mosquitoes.

"The government has also introduced rapid diagnostics and Artemisinin-based combination medicine for treatment, apart from providing long-lasting insecticidal bed nets for prevention.

But a setback for India is the growing resistance to the antimalarial drug chloroquine. Although the problem is seen in the entire country, it is more evident in regions with intense *P. falciparum* transmission such as North Eastern states, Odisha, construction sites, big metropolitan areas and areas along international borders.

We provide you ten facts about malaria you should be aware of. Here's how to avoid monsoon-related diseases.

Fact #1

Malaria is transmitted when a mosquito infected with the Plasmodium parasite bites a person. The mosquito acts as a carrier of the Plasmodium meaning when a mosquito bites a person infected with malaria, there is a high chance that the parasite can be spread to a healthy individual when this mosquito bites that person.

Fact #2

Did you know that malaria can be caused by four variants of the same parasite? Well, here are the four common species of the Plasmodium –

Plasmodium Vivax: It is the most common types of Malaria parasite that is found in India. It is estimated that about 60% of Indians are infected with this type. Although not fatal, it can lead to liver and kidney failure and also has the highest possibility of recurrence.

Plasmodium Ovale: This is the rarest form of malaria found in India but is most rampant in countries like Nigeria and other West African countries.

Plasmodium Falciparum: This is the most dangerous type of malaria and is known to affect the brain and nervous system leading to death. Plasmodium Falciparum is rampant in India, and it has been found that it is also resistant to conventional antimalarial therapies.

Plasmodium Malariae: This type of malaria has less than 1% presence in the country. It is not known to cause death but can severely damage the immune system.

Fact #3

Malaria is especially dangerous for pregnant women as the parasite can pass into the mother's womb and infect the foetus as well. Once the foetus has been infected with malaria, it can lead to the baby being born with a low birth weight and may lead to death.

Fact #4

About one million cases of malaria are reported in India every year. Recent news suggests that the WHO had estimated the number of cases occurring in India to fall by almost 50-75% by the year 2015. But there are reports that the Indian government might not be able to achieve this target because of lack of funds.

Fact #5

The female Anopheles mosquito is responsible for transmission of the parasite from already infected person to a healthy individual. This type of mosquito is usually small to medium sized, and breeding is encountered following the monsoon. It breeds in rainwater pools and puddles, burrow-pits, irrigation channels, seepage and sluggish streams.

Fact #6

The common line of treatment for malaria was to administer the drug chloroquine. But over the years, it has been found that the drug does not provide effective result against malaria caused by P. falciparum. This variant has more or less developed a resistance to the drug rendering it ineffective. The development of resistance to drugs has led to a breed of chloroquine-resistant mosquitoes, and the disease is called multi-drug resistant malaria.

Fact #7

The main ingredient in all antimalarial drugs is a plant extract from a plant called Qinghaosu that produces chloroquine.

Fact #8

The newest drug therapies used to treat malaria in India mainly focus on using a combination of drugs. These include artemisinin based combination therapy, analogs of existing drugs (different and more potent forms of the drug) namely atovaquone and proguanil and drug-resistant reversers.

Combination therapy is preferred over the conventional therapies because it is less likely for the parasite to become resistant and also helps reduce the chances of recurrence. Because of this, the drug policy and treatment plan for treating malaria has recently been changed. The new policies have been employed in high risk areas such as Assam, Andhra Pradesh, Chhattisgarh, Meghalaya, Mizoram, Orissa, Arunachal Pradesh and few other regions.

Fact #9

Even after you are cured of the disease, there is an increased risk that malaria can recur. This is the reason, the WHO recommends continuing anti plasmodium therapy for at least three to five days, depending on the type of malaria. It will ensure the parasite is completely eradicated from the patient's body as it has a tendency to remain dormant in the liver and recur once the person's immune system has been compromised.

Fact #10

The newest line of drugs, which are still in the research phase, includes a drug called Spiroindolones. This drug has been found to have the potential to block the parasite's signaling pathway leading to its destruction at an early stage in the disease. Another novel drug is one that causes a salt overload within the parasite's body leading to its death. This drug promises to beat the possibility of the parasite developing a resistance to the drug and provide cheap treatment options to developing countries.

Lastly, malaria is a completely preventable disease. It cannot be transmitted from one person to another without a vector (mosquito) and is completely curable. All we need to do is get the right treatment and take the right precautions to eradicate malaria completely.

Symptoms of Malaria

After been bitten by an infected mosquito, the disease takes around 14 days to manifest. Commonly observed symptoms are –

1. Fever
2. Headache
3. Chills
4. Sweats
5. Fatigue
6. Nausea and vomiting



These are just some of the common symptoms of malaria. Some of the other symptoms include dry cough and muscle pain. If you've been diagnosed with the disease, then you should take adequate rest until these symptoms subside.

Diagnosis

Normally blood is taken from a finger prick at a lab and the parasite is seen within your red blood cells under a microscope. A variety of rapid tests are available that detect the malaria antigen and can diagnose the condition in 10 minutes.

Treatment

The National Institute of Malaria Research has developed guidelines on diagnosis and treatment of malaria:

- Chloroquine is given to the patient and dose is given depending upon the body weight of the patient. The use of Chloroquine has led to the emergence of many Chloroquine-resistant falciparum malaria cases. For such individuals, a drug called Artemisinin is given.
- Avoid giving anti-malarial drugs on an empty stomach. Always give the first dose under observation.
- Give plenty of fluids
- If no improvement occurs within 48 hours, call the doctor.
- Look for any warning signs of dehydration, reduced urine output, bleeding, seizures or coma.

Complications

If untreated within 24 hours of the symptoms showing up, it can be a very serious and life threatening disease because of the following complications:

- Severe anaemia caused due to the red blood cells being destroyed.
- Jaundice.
- Dehydration.
- Cerebral malaria: the infected red blood cells block the vessels in the brain and lead to seizures and coma and eventually death if not treated.
- Very low BP leading to 'shock'
- Liver profile
- Kidney profile

These symptoms can be more severe in pregnant females, babies and the elderly.

Prevention

With some simple yet effective precautionary measures, one can prevent malaria. Here are some of them which you can try -

- Mosquitos breed in stagnant water – whether it is a *nallah* near your house, a pond in the neighbourhood or a water puddle near your house from a long time. Get them closed, cleaned up as soon as possible. Even plants in pots, bird baths, fountains etc. should not hold stagnant water. The water in the swimming pools needs to be circulated and chlorinated.
- If you store water in the house due to its shortage, close the container.
- Use mosquito screens, nets, fibre glass meshes or magnetic insect repellent screens for your windows if you live in a mosquito-infested area. If possible, avoid the time immediately after dusk to venture out especially so for children. If you need to, wear clothes that cover your body to a large extent. Cover the exposed parts with a mosquito repellent.
- Indoor residual spraying with an insecticide is also recommended.
- Insecticide treated bed nets should be used in areas where mosquitos and malaria are rampant.
- If travelling to a malaria-endemic area, chemoprophylaxis is given to travellers. Consult your doctor and discuss your travel.



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