

The Changing Face of Malaria

— Nandini Chatterjee

*MD, FRCP (Glasgow), FICP
Professor, Department of Medicine,
IPGME&R and SSKM Hospital, Kolkata 700020 and
Hony Editor, JIMA*

The clinical profile of communicable diseases is changing with the passage of time and malaria is no exception. The WHO has taken up the challenge of Health for All by 2030 which includes elimination of malaria. The global targets in the coming years are - reduction of mortality of malaria along with decrease of case incidence by 90%. Country-level elimination and prevention of re-establishment of malaria is top priority through investment, innovation and implementation.

In 2020, about 5.12 lakh cases of malaria were reported in South East Asia. India accounted for 36.4% of the reported cases in the region as well as 63% of deaths. However, between 2000 to 2019 percentage drop of cases has been 71.8% and of death, 73.9% which is considerable. India has significantly reduced malarial burden and contributed to the largest drop in cases region-wide. But the pandemic has led to disruption of health services and wreaked havoc on health infrastructure and manpower. Literature has reported a worldwide increase in malaria cases & 47,000 more deaths in 2020 compared to 2019 due to disruptions to services during the pandemic though not in India.

Elimination requires early diagnosis, prompt treatment, radical cure, vector control and optimal surveillance. However, it is being observed that the clinical presentation of malaria is largely atypical now-a-days and the diagnosis of malaria is becoming increasingly elusive to the treating physician. This has a direct implication on the morbidity and mortality patterns of the disease.

Symptoms like lack of taste, sore throat, cough are being reported simulating an influenza like illness. The usual manifestations of falciparum malaria such as cerebral malaria, black water fever and algid malaria seen in the past are being replaced with unusual complications like haemolytic anaemia, severe anaemia, thrombocytopenia, pancytopenia and adult respiratory distress syndrome. Severe malaria is being increasingly reported in *P vivax* malaria with complications like cerebral malaria, severe anemia, hepatic dysfunction, acute lung and kidney injury, acute respiratory distress syndrome, severe thrombocytopenia, bleeding, as well as shock.

It is important to evaluate the underlying factors responsible for the predominance of vivax infections as well as complications in recent times. The foremost reason is the high proportion of recurrent infections attributable to relapse, which are associated with transmissible gametocytemia. This leads to appearance of sexual-stage parasites

prior to clinical presentation or start of antimalarial treatment and easy transmissibility. It has been documented that *P vivax* can be transmitted at low-level parasitemia.

Secondly, there is a reduced rate of detection of *P vivax* due to low sensitivity of rapid diagnostic tests to peripheral *P vivax* parasitemia. Moreover, the high proportion of asymptomatic carriers harboring hypnozoites in the liver, goes undetected and untreated.

Radical cure is of prime importance in *P vivax* malaria and it is hindered by multiple impediments. Mixed-species infections are often misreported as *P falciparum* mono infection and radical cure is not offered to them, thus the relapse of vivax infections can not be prevented.

There is also the issue of nonadherence to a 14-day radical cure treatment regimen. At times sub-optimal primaquine regimens are recommended, due to concerns about severe haemolytic reactions caused by G6PD deficiency which can not be tested in remote areas.

The vector longevity and behavior has undergone much differentiation and the global climate change is responsible for the alteration of the spatial and temporal distribution of malaria. Climate change is expected to have a profound effect on the mosquito's life cycle and development of malaria parasites in the vectors. There is rise in malaria transmission particularly in areas which used to be disease free due to extremes of temperature. But now even districts in the Himalayan

foot hills are likely to experience new foci of infection and transmission for 1-3 months more due to increase in temperature and prolongation of monsoon.

As of now, the transmission suitability improves from July onwards and withdraws by October, but by 2030, this suitability window will extend up to November, thus making these regions vulnerable to prolonged malaria transmission.

Drug resistance is another issue specially in the North eastern parts of the country and physician awareness and training programs and optimal supply of drugs needs to be ensured.

To summarize, the face of malaria, its transmission dynamics, complication profile and resistance patterns are altering. Knowledge about this will enhance prompt diagnosis and treatment. But it must be remembered that effective surveillance and reporting coupled with infrastructural backup, trained manpower and commitment is warranted to achieve our goal by 2030.

FURTHER READING

- 1 Shital N Rathod, Arvind Chavan, Shilpa Sharma, Tushar Rathod, Nihal Khan, Koustubh Bavdhankar — Changing clinical profile of malaria at a tertiary care hospital. *International Journal of Advances in Medicine* 2018; **5(3)**: 510-13.
- 2 Katyal VK, Singh H, Siwach SB, Jagdish, Lahri S, Basu M — The changing profile of *Plasmodium falciparum* malaria. *Indian J Med Res* 1997; **105**: 22-6. PMID: 9029831.
- 3 Sharma A, Khanduri U — How benign is benign tertian malaria? *J Vector Borne Dis* 2009; **46(2)**: 141-4. PMID: 19502694.