Drug Susceptibility of malaria parasites: implications in treatment

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Malaria is an important cause of morbidity and mortality in tropical countries. In India National Vector Borne Disease Control Programme (NVBDCP), reports about 2 million positive cases and 1000 deaths annually. The country thus contributes 70% of the cases to Southeast Asia malaria burden. Although the endemicity in different parts of country is variable, the overall proportion of *P. falciparum* is increasing probably due to resistance to widely used antimalarial namely chloroquine.

In India, CQ resistance of *P. falciparum* was first reported in Assam in 1973 and a number of studies until 1977 indicated widespread presence of CQ resistant *P. falciparum* in Assam, Arunachal Pradesh, Mizoram and Nagaland. Since then drug resistance has been reported from several parts of the country including NE states and Orissa. Areas along the international borders are posing a challenge for malaria control since there is continuous movement of people through the porous international borders, and there is poor administrative control and inaccessibility. About 80% (143/174) studies with a follow up of 28 days conducted during 1978 to 2006 indicated presence of resistance to chloroquine. Studies with molecular markers for chloroquine resistance have shown that number of isolates with N86Y mutation of pfmdr 1 and K76T mutation of pfcrt has increased over the time.

During the past decade Artemisinin group of drugs have been introduced and deployed for treatment of malaria. They produce rapid parasite clearance and resolution of symptoms. Combination of Artemisinin with drugs with long half life result in higher cure rates with 3-day regimens and can help in retarding development of resistance to both the drugs. In India also ACT (AS + SP) has now been introduced in chloroquine resistant and high endemic *P. falciparum* areas. However indiscriminate use of artemisinin as monotheraphy may endanger the useful therapeutic life of this valuable drug. Therefore, appropriate implementation for use of these expensive regimens must be ensured.