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Prevalence of *Plasmodium falciparum* chloroquine resistant gene markers, *pfcrt*-76 and *pfmdr1*-86, eight years after cessation of chloroquine use in Mwea, Kenya

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Abstract

Background and Methodology: The prevalence of T76 and Y86 *Plasmodium falciparum* molecular markers for chloroquine (CQ) resistance in the *Pfcrt* and *Pfmdr1* genes were investigated by PCR-RFLP and dot blot analysis in samples (50 for *Pfcrt* and 51 for *Pfmdr1*) collected in May 2005, eight years after chloroquine (CQ) cessation. Results: Our findings show that 94% of field isolates from this site still harbor T76 mutation in *Pfcrt* while 6% have the wild type allele K76 [T test, P=0.04058 (1997 versus 2005)]. Dot blot analysis revealed that most of the isolates had MET polymorphism at position 74, 75 and 76 wild type allele of the *Pfcrt* gene. When *Pfmdr1*-86 was analyzed by dot blot, 6% of the isolates had wild type allele N86, 73% had mutant allele Y86, and 21% had both N and Y [T test, P=0.04058 (1997 versus 2005)].

Conclusions: Dot blot hybridization was found to be more sensitive and specific than PCR-RFLP. The study showed a moderate reversal to sensitivity by the *P. falciparum* population in the study site compared to the situation before CQ cessation.

**Key Words**: *Plasmodium falciparum*, Chloroquine resistance, PCR-RFLP, Dot blot.


Received 16 May 2007 - Accepted 8 August 2007.

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