A-16: Drug resistance and clinical immunity in *Plasmodium falciparum* malaria infections among hospital admissions in Colombo

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The sensitivity of *Plasmodium falciparum* infections to the antimalarial drugs which are currently used in hospitals was investigated. *P. falciparum* infected patients (97) admitted to the General Hospital, Colombo and Lady Ridgeway Hospital (90 & 7 respectively) during a 17 month period from January 1992 and treated with chloroquine (CQ) were followed up at regular intervals after they were discharged from the hospital. At each follow-up the patients' blood was examined for parasites, and a clinical assessment was performed using a previously validated questionnaire. 54% (52 patients) had *P. falciparum* asexual parasitemia at the first follow-up examination, which in a majority of patients was within 14 days of treatment. We conclude that the persistence of parasitemia or recrudescences in these patients was due to CQ resistance because none of them had revisited a malaria endemic region since their first infection. Of these 52 patients, 18 were treated with CQ for the second time and 14 (78%) were positive again at subsequent follow-up examinations for asexual parasites. This indicated that the CQ treatment for the second time was ineffective except in 2 cases (11%) where the first CQ treatment was incomplete. Others were treated with either sulphadoxine-pyrimethamine (SP) or quinine. All quinine treated patients (12) and all but one SP treated patients (27) responded and did not recrudesce.

Clinical evaluations of these patients revealed that during the second and third recrudescence, the prevalence and severity of clinical symptoms were significantly less than during their primary infection ($p=0.0029$). Blood parasite densities were also significantly lower during the recrudescence compared to the primary infection ($p=0.006$). These results indicate that both anti-parasite and clinical immunity against malaria develop in drug resistant infections, confirming that immunity to the homologous strain develops rapidly. 32% of these CQ resistant patients were completely asymptomatic and are not likely to have presented for treatment; such patients would have been undetected had they not been routinely followed up. Active case detection may be necessary for malaria control, to curtail the spread of CQ resistant infections.