

POSTER PRESENTATION

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# Therapeutic efficacy of chloroquine and primaquine for *Plasmodium vivax* malaria treatment in southeast Iran

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From Challenges in malaria research  
Basel, Switzerland. 10-12 October 2012

## Background

*Plasmodium vivax* is the main cause of malaria infection in Asian, Central and South American countries [1]. It accounts for more than 90% annually of the reported malaria cases in Iran [2]. *Plasmodium vivax* resistant to chloroquine has emerged in some regions of Asia and resistance or tolerance to primaquine has been demonstrated in several countries [3,4]. The aim of this study was to determine the therapeutic efficacy of chloroquine and primaquine for *Plasmodium vivax* malaria treatment in southeast Iran.

## Material and methods

A total of randomly selected 270 patients with confirmed *P. vivax* infection participated in 28-day *in vivo* study that extended for 2 years for detecting relapse infection. Chloroquine and primaquine were administered during 3 days and 8 weeks respectively in 2010. The thick and thin film blood smears were screened for malaria parasites by microscopy. The nested PCR was applied using the *Plasmodium* 18 subunit ribosomal ribonucleic (Ssr RNA) genes for detecting mixed infections and diagnosis of parasites in the samples with low parasite on days monitoring the drug resistance.

## Results

Fever resolved on the first day in all subjects. Microscopy findings showed that *P. vivax* was cleared in 15%, 50%, 95%, and 100% of patients on days 1, 2, 3 and 4, respectively. All 270 subjects showed ~120 Bp band in the nested PCR which was indicative of *P. vivax* malaria on the zero days. Six patients (2.2%) had specific

*P. vivax* band in nested PCR on day 5. No recurrence was observed on days 7, 14 and 28 in thick blood smear and nested PCR. Mean ( $\pm$ standard deviation) parasite clearance time was 2.41 ( $\pm$ 0.8) days. Two patients had *P. vivax* malaria clinical and parasitological infection following 8 and 12 months after primary *P. vivax* malaria infection.

## Conclusions

The findings of this study showed susceptibility of *P. vivax* to chloroquine in South east Iran. This finding is compatible with results of neighboring countries Pakistan and Afghanistan. Nested PCR was a suitable assay to determine exact malaria parasite clearance time in our study. The further investigation is being conducted in two reinfection cases by PCR -Single strand conformational polymorphism method to differentiate between relapse and new *P. vivax* infection.

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Published: 15 October 2012

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doi:10.1186/1475-2875-11-S1-P45

**Cite this article as:** Heidari *et al.*: Therapeutic efficacy of chloroquine and primaquine for *Plasmodium vivax* malaria treatment in southeast Iran. *Malaria Journal* 2012 **11**(Suppl 1):P45.

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