

Praziquantel for Treatment of Malaria

Pages with reference to book, From 378 To 379

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Abstract

The possible effect of oral praziquantel on malaria parasites was studied. Nine patients with *P. falciparum* and one patient with *P. vivax* were treated with 30 mg/kg/day of praziquantel in three divided doses for a maximum of 8 days. The results showed that eight patients had complete cure within 4-6 days of using praziquantel. Two patients with *P. falciparum* complicated by jaundice and severe anemia showed no response and required antimalarial drugs. One patient had bloody diarrhoea. It could be concluded that praziquantel might represent a new line for treatment of malaria (JPMA 48:378, 1998).

Introduction

Malaria is generally endemic in tropics with extension into the subtropics. It is endemic in 91 Countries and *P. falciparum* is the predominant species. At present, 300 million people are affected globally and there are between 1-1.5 million malaria deaths per year¹. Various drugs used to treat malaria include chloroquine, amodiaquine, pamaquine, pyrimethamine and quinine. Two major problems observed with the use of antimalarial drugs are drug resistance and side effects. The latter include serious hypoglycaemia, nausea, vomiting, hypotension, diarrhoea and coma. Some of them are contraindicated in pregnancy. Drug resistance has been reported with all antimalarial drugs except artemisinin and its derivatives². Therefore, drug resistant malaria has become one of the most important problems in malaria control in recent years. Various plasmodium falciparum strains have now attained resistance to all commonly used and generally available antimalarial drugs².

In Yemen, malaria is endemic and recently we have seen many cases of *P. falciparum* which proved to be resistant to chloroquine (Al- Waili unpublished).

Praziquantel - a broad-spectrum anthelmintic is effective in eradication of *E. histolytica* and *O. lanibilia*. This study was conducted to test possible effect of praziquantel in patients infected with malaria parasites.

Patients and Methods

Ten patients (8 male and 2 female, age range 12 and 52 years, mean 30.4 years) were included in this study. They presented with a history of fever, chills, sweating, headache, nausea and loss of appetite. The patients underwent a complete physical examination. Laboratory investigations included complete blood picture, thick blood smear, urinalysis, stool examination, renal function tests, liver function tests, blood culture, blood sugar and electrolyte and ultrasonography. Patients with history of diabetes mellitus, renal or hepatic dysfunctions, cardiovascular or blood diseases were excluded from the study. Blood smear showed falciparum malaria in 9 patients and malaria vivax in one patient. Patients were admitted in the hospital and after informed consent, treated with 30 mg/kg/day of oral praziquantel in three divided doses for a maximum of 8 days. The patients were followed by 2 hourly temperature chart and 12 hourly blood smear examination. Blood smear for malaria parasites were examined blindly. Any patient whose condition deteriorated during the period of the study was excluded and treated with antimalarial drugs.

Results

All the patients showed heavy parasitic infestation with different stages of erythrocytic cycle. Five of them had anemia and two patients had mild jaundice. Three patients had a past history of malaria before. Spleen was enlarged and slightly tender in all cases. None of the patients had signs and symptoms of cerebral malaria.

After commencement of the treatment all the symptoms were gradually relieved in eight patients. Fever subsided and blood smear became negative in 2 patients on day 4, in 3 patients on day 5 and in 3 on day 6. However, two patients with falciparum malaria complicated by jaundice showed no response and were treated with anti-malarial drugs.

One patient developed bloody diarrhoea 5 days after treatment and 2 patients had vomiting.

Intravenous fluid was needed in 4 patients, including 2 patients who failed to respond to praziquantel. However, these patients responded to antimalarial drugs. None of the responding patients relapsed over a period of 3 months follow up.

Discussion

This trial shows that praziquantel might represent an additional drug in the treatment of malaria. The drug was well tolerated with few side effects. Praziquantel is effective in treating severe helminthic infections³. It has been used to treat *T. Solium* and *T. Saginata*^{4,5}, hydatid cyst⁶ and *Dipylidium caninum*⁷. It is commonly used in the treatment of all types of schistosomiasis and causes recovery from immunosuppression⁸. Praziquantel produced contraction and subsequent flaccid paralysis of schistosomiasis⁹. It has a selective effect on teguments of trematodes and increases permeability of calcium¹⁰. Praziquantel is more effective in presence of antibody against parasites¹¹. In malaria there is large increase in antibody production and vaccines are currently being developed¹².

In this study praziquantel seems to have therapeutic effect on malarial parasites. The mechanisms of action needs further investigation. The dose used was 30 mg/kg/day for a maximum of 8 days. Higher doses (50 mg/kg/day) for 15 days have been used to treat cysticercosis¹³.

Malaria is a complex but a curable and preventable disease. However, the situation has become complex over the last few years with increase in resistance to medication. For prevention of malaria well planned control programmes and for treatment search for new drugs is needed. Further controlled studies should therefore be conducted to substantiate the result of this preliminary clinical study.

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