MALARIA IN CHILDREN: STUDY OF 160 CASES AT A PRIVATE CLINIC IN MANSEHRA

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Background: This Study was conducted in a private clinic to report frequency, presentation and management of malaria in children presenting with fever. **Methods:** 160 Children of age varying from 42 days to 15 years were included in this study, during a period of 1999-2004. **Results & Conclusions:** Malaria was confirmed in 154 cases, including 114 male and 46 female children. In 6 cases malarial parasite was not seen on microscopic examination of their blood films. 142 cases were found to be suffering from vivax and 12 were suffering from falciparum malaria. Most of the cases were treated with amodiaquine and some of them were treated with other antimalarial drugs.
Keywords: Malaria, Children

INTRODUCTION

Malaria is present in endemic form in about 103 countries of the world. Every year more than one billion persons in the world suffer from this disease. It kills about 1-3 million people in the world every year. [1-4]

Plasmodium vivax and plasmodium falciparum are the species which are responsible for malaria in Pakistan[5]. Malaria parasite has developed resistance to many anti-malarial drugs[6]. Malaria in endemic in Pakistan and many patients suffer from chloroquine resistant malarial infection[7].

Patients, who suffer from malaria due to plasmodium vivax, develop exoerythrocytic cycle in the liver, which requires treatment with primaquine after the initial antimalarial regimen.

We studied the incidence of malaria in children of age varying from 42 days to 15 years. This study included 160 cases of malaria observed in a private clinic in Mansehra during the period of 1999-2004.

MATERIAL AND METHODS

Study was done in a private clinic located at Mansehra city. In this clinic children were examined and treated a trained and experienced pediatrician (one of authors). 160 cases of malaria were included in the study. Cases suspected of malaria were confirmed by examination of their blood films by a trained laboratory technician. Most of the children thus confirmed malaria were treated with amodiaquin, because the suspension of this tasteless and well tolerated by the children. Cases resistant to amodiaquin were treated with other antimalarial drugs such as halofantrine, (Combination of sulfadoxine and pyrimethamine) etc.

RESULTS

160 Children were found to be suffering from malaria. Out of these 154 cases were found to be having malarial parasite present in their blood film, while in 6 patients malarial parasites was not observed. These 6 patients in which malarial parasite was not observed in their blood film did respond to antimalarial drugs indicating clinical malaria. Out of 160 children suffering from malaria, 114 were male and only 46 female patients (Table-1). 142 of these cases were found to be suffering from malaria due to plasmodium vivax and 12 were confirmed as cases due to plasmodium falciparum infection (Table-2).

Table-1: Gender Distribution of malaria cases

Sex	No. Patients (160)	%
Male	114	71.25
Female	46	28.75

Table-2: Type of infection

Type of Infection	No. cases (154)	%
Plasmodium vivax	142	92.21
Plasmodium falciparum infection	12	7.79

Out of 154 cases 58 of these cases were found to have enlarged spleen and 31 were having enlarged liver on abdominal examination (table-3).

111 of these cases showed improvement with amodiaquin alone. 19 of these cases responded to halofantrine alone. 8 these cases showed improvement with amodiaquin and fansidar (Combination of sulfadoxine and pyrimethamine). 6 cases showed improved with halofantrine combined fansidar (Table-4).

142 children, who were confirmed to e suffering from plasmodium vivax infection, were then treated with primaquin for 14 days, for eradication of parasite from their liver.

Table-3: Hepatospleenomegaly in malaria patients

Hepatospleenomegaly	No. of patients infected (154)	%
Enlarge spleen	58	37.66
Enlarge liver	31	20.13
No effect	65	42.21

Table-4: Drug Used and improvement

Drug used	No. of patients (154)	%
Amodiaquin alone	111	72.08
Halofantrine alone	19	12.34
amodiaquin and fansidar (Combination of sulfadoxine and pyrimethamine)	8	5.19
Halofantrine combined fansidar	6	3.9

DISCUSSION

Plasmodium vivax is the most common cause of malaria in Asia and Central and South America. Although most strains plasmodium vivax are sensitive to chloroquine and amodiaquine, but resistance to these drugs and pyrimethamine has emerged in some areas of the world[8].

Plasmodium falciparum is rapidly developed resistance to even newly discovered antimalarial drugs, such as mefloquine and halofantrine [9].

Drug resistance is the principal problem in the treatment of malaria, including malaria in children. The true mechanism of this problem is not clear, but contributory factors may include, lack of compliance in children, multiple drug thera[hy, cross-resistance, positive-selection, and genetic influence of drugs. Plasmodium vivax has also developed resistant strains to chloroquine and amodiaquine. Mefloquine-resistant of Plasmodium vivax have been reported in Thailand. Even, some incidence of quinine-resistant vivax malaria are reported in from Thailand, but it remains an effective drug, especially when used in combination with tetracycline or doxycycline. Resistance to artimisinine has not yet been reported [10].

In our study, we have found that out of 160 children suffering from malaria, 114 were male only 46 were female children. This shows significant predominance of male over female children. This may be because of the more exposure of male children to the bite of mosquito infected with malarial parasite.

As plasmodium vivax malaria is more common in our region, and there is usually no eradication drug regimen used in such patients, many of these cases may be due to repeated reactivation of parasites residing in the liver cells. Moreover, our study has shown that through most of the children who suffered from vivax infection responded to treatment with amodiaquine, but some cases were resistant to the drug. In these resistant cases we used halofantrine, fansidar (combination of sulphadoxine with pyrimethamine) etc. The reason for not using chloroquine as a first choice for vivax malaria was that children usually do not tolerate it due to its bitter taste. Amodiaquine, on the other hand, is well tolerated by the children and its mechanism of action and its effects are similar to that of chloroquine. In our study 12 children were suffering from falciparum malaria. Most of these children required treatment with halofantrine and a few required halofantrine with other drugs.

In this study 58 showed enlarged spleen. This suggests the presence of chronic malarial infection in these cases. This may occur in cases who are suffering from infection due to plasmodium vivax. To treat these cases, we require a 14 day course of treatment with primaquine, which will lead to eradication of parasites from the liver cell.

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