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Original Research Article

A Hospital Based Assessment of Clinical Profile of Falciparum, Vivax and Mixed Infections of Malaria

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Abstract

Aim: The aim of our study was to find out the spectrum of clinical manifestations, infecting species, age distribution and mortality in admitted patients of malaria in our hospital and to compare the clinical profile with severity of P.vivax and P. falciparum malaria in pediatrics age group in a tertiary care hospital.

Methods: Malaria confirmed by Peripheral thick and thin smear or Antigen Assay underwent detailed clinical history and physical examination. Statistical analysis was done using chi square test for comparing proportions. P value < 0.05 was considered significant.

Results: In the present study, out of 120 patients a greater number of males (77 patients) were affected when compared to females (43 patients). The predominant age group affected was 20-30 years, which constitutes to about 64%, followed by 31-40 years (34%). Fever is the most common presentation in all 120 patients both falciparum and vivax infected patients. Pallor was the most common clinical sign, was observed in 68 patients of falciparum and 52 with vivax species.

Conclusion: Malaria is very common disease in our country. Severe malaria usually caused by the falciparum more than vivax, early diagnosis and treatment decreases the mortality and morbidity.

Keywords: Clinical profile, Malaria, Falciparum, Mixed, Vivax.

Introduction

India contributes to about 2/3rd of Malaria in the Southeast Asia region. [1] There exists heterogeneity and variability in the transmission between and within the states of the country as many ecotypes of Malaria have been recognized. Among the four species of Plasmodium, Plasmodium falciparum and vivax are commonly found in India. Disease caused by Plasmodium vivax Malaria used to be called benign tertian. In contrast Plasmodium falciparum causes severe Malaria and often produces multi-organ failure unless treated early with

multiple drugs. Kochar etal in a study reported several cases of vivax Malaria with multi-organ dysfunction syndrome [2].

Six species of the genus plasmodium cause nearly all malarial infections in humans. These are P. falciparum, P. vivax, two morphologically identical sympatric species of P. ovale (as suggested by recent evidence), P. malariae, and in Southeast Asia the Malaria monkey malaria parasite P. knowlesi. [3]

Acute respiratory distress syndrome, hepatic involvement and renal involvement are common in Plasmodium falciparum Malaria; these complications also have been reported in Plasmodium vivax Malaria. [4, 5, 6, 7, 8, 9]

It was noted that only patients with falciparum infection or mixed infection had these symptoms. It was not observed with any of the patients with vivax malaria. The study by Melhotra et al also found similar observation where the involvement of CNS was observed in 12.5% of the patients. [10]

The present study was carried in Bihar, reporting the clinical profile of both falciparum, vivax and mixed infections and their results.

Materials and Methods:

This was a descriptive study, which was done in the Department of General Medicine, Nalanda Medical College & Hospital, Patna, Bihar, India for 10 months.

Methodology

A detailed history was taken followed by a detailed clinical examination to assess clinical severity and all the patients in this study were proved to be case of malaria either by Peripheral smear examination (both thick and thin smear) or MPQBC or by malarial antigen Assay. These investigations were ordered before the antimalarial treatment was started. Patients below the age 18 years, pregnant women, Fever of any other cause were excluded from this study.

Once the patient was diagnosed to have malaria, they were started on Anti-Malarial drugs according to the new WHO guidelines for treatment of Malaria. Other supportive treatment was given according to the patient's conditions.

The study was carried out on 120 patients admitted during the period of six months in the hospital. It was a prospective cohort study.

Results:

In the present study, out of 120 patients a greater number of males (77 patients) were affected when compared to females (43 patients). Male to female ratio was 1.8:1.2 (Figure 1).

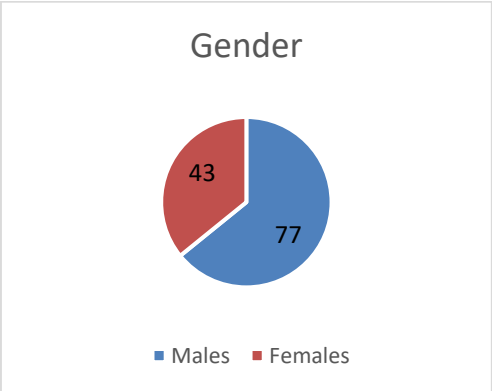

Figure 1: Gender distribution

The predominant age group affected was 20-30 years, which constitutes to about 64%, followed by 31-40 years (34%). The mean age of in this study was 37.12 years (Figure 2).

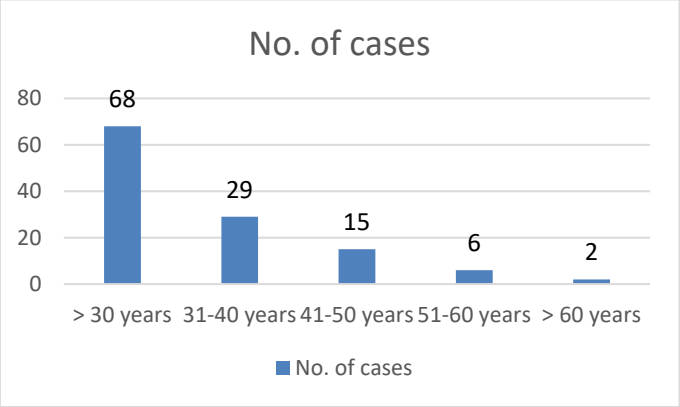

Figure 2: Age distribution

Majority of these patients were from rural areas i.e., 69 patients (57.5%) and 51 patients (42.5%) from the urban people. (Table 1).

Table 1: Urban and rural distribution.

Area	Male	Female	Total
Urban	32	19	51
Rural	40	29	69

Fever is the most common presentation in all 120 patients both falciparum and vivax infected patients. This is followed by chills and rigors was present in 75.8% patients, 44.1% of patients with falciparum and 31.6% of the patients infected with vivax. Nausea and vomiting where another common complaint were observed in 60.8% of total patients, more in falciparum 34.1% than vivax 26.6%. All these manifestations were most commonly observed in falciparum than vivax (Table 2).

Table 2: Clinical symptoms.

Symptom	*P. Falciparum*	*P. Vivax*	Total
Fever	120	120	120
Chills and rigors	53(44.1%)	38(31.6%)	91 (75.8)
Easy fatigability	20(16.6%)	17(14.1%)	37 (30.8)
Nausea, vomiting	41(34.1%)	32(26.6%)	73 (60.8)
Cough	16 (13.3%)	4 (3.3%)	20 (16.6)
Altered sensorium	13(20.3%)	0	13 (10.8)

Pallor was the most common clinical sign, was observed in 68 patients of falciparum and 52 with vivax species. Splenomegaly was second common clinical sign, found in 53 of all patients. These were followed by icterus, detected in 31 of patients, more in falciparum and 23 with vivax species. (Table 3)

Table 3: Clinical signs in different species

Symptoms	Falciparum	Vivax
Pallor	68	52
Icterus	31	23
Pedal Edema	20	8
Splenomegaly	53	38
Hepatomegaly	19	5
CNS involvement	20	0

None of the patients of either group falciparum, vivax or mixed infection died in our study. All patients recovered and discharged in good health condition.

Discussion:

P. vivax malaria has been considered to be a benign form of malaria, with low mortality but studies from across the world now have shown that vivax is not benign but has been associated with complications and mortality similar to our study which also shown this trend.[11] The most common species to cause malaria in our study was P. vivax (63.20%) followed by P. falciparum (20.75%) and mixed parasitemia (1.88%). In the study by Singh R et al [12]

Fever is the main presenting complaint in our study, present in all 100% of patients. A similar observation like fever as presenting complaint and presence of fever in 100% of patients is present in Khuraiya P et al, study, Patel G et al, study and Anshika Jain et al, study group. [13, 14, 15] In Rathod SN et al, study fever was present in 95.1% of patients.[16]

Pallor was present in 75% of the patients in a study carried out by Malhotra et al, it was noted in 70% in this study.[10] The incidence of pallor was more in patients with falciparum and mixed infection; it was 56.6% and 100% respectively. Pallor was present in only 43.3% of the patients with vivax malaria in this study. In other studies, Khuraiya et al, it was 63.4% which was some nearer to our study. [13] Incidence of pallor was very less in Surve KM et al, and Anshika Jain et al, compared to this study; it was 55% and 50% respectively. [15, 17] In Surve KM study there was more incidence of vivax malaria than falciparum malaria. [17]

High percentage of splenomegaly are Murthy et al, where patients with splenomegaly are 50%, another study Nand et al, showed 60% of patients with splenomegaly. [18, 19] None of the patients with cerebral malaria had any residual neurological sequelae. Newton C.R et al, in their study noted that approximately 3% of the patients with cerebral malaria had a neurological deficit. [20]

Conclusion:

Malaria is very common disease in our country. Severe malaria usually caused by the falciparum more than vivax, early diagnosis and treatment decreases the mortality and morbidity.

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