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Original Research Article

Spectrum of Clinical Manifestations in Patients Diagnosed of Malaria and to Compare the Severity of P. Vivax and P. Falciparum 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.

Material & Method: The study was carried out on 150 patients admitted during the period of seven months in the hospital. It was analytical cross-sectional study, which was done in the Vardhman Institute of Medical sciences, Pawapuri, Nalanda, Bihar, India.

Results: In the present study, out of 150 patients more number of males (93 patients) were affected when compared to females (57 patients). Fever is the most common presentation in all 150 patients both falciparum and vivax infected patients. Pallor was the most common clinical sign, was observed in 82 patients of falciparum and 61 with vivax species.

Conclusion: Malaria is a fairly common disease in our country. Early detection and treatment of severe malaria, which is mainly caused by the falciparum rather than the vivax, reduces mortality and morbidity.

Keywords: malaria, severity, falciparum, vivax

Introduction

World health organization released latest world malaria report which was released on 19 November 2018 an estimated 219 million cases and 435000 deaths in 2017. Data from 2015-2017 shows that no significant progress in reducing global malaria cases was made in this period. [1] Between year 2000 and 2015, malaria incidence among population at risk decreased by 37% globally; during the same period malaria mortality rates among population at risk decreased by 60%. In 2016, there were estimated 216 million malaria cases, an increase of about 5 million cases over 2015. Deaths reached 445000, similar number 2015. [2]

Plasmodium falciparum causes severe Malaria and often produces multi-organ failure unless treated early with multiple drugs. Kochar et al in a study reported several cases of vivax Malaria with multi-organ dysfunction syndrome.[3]Profound thrombocytopenia is a common complication of falciparum malaria but recently there have been several reports of vivax malaria with thrombocytopenia. [4, 5]

In India about 21.98% population lives in malaria high transmission areas. About 91% of malaria cases and 99% of deaths due to malaria is reported from northeastern states Chhattisgarh, Jharkhand, Gujarat, Rajasthan, West Bengal and Karnataka and their states also vulnerable with local and focal out breaks of malaria and much of these areas are remote and inaccessible. [6] The malaria Incidence and deaths due to malaria have reduced significantly in recent years during the period 2000 to 2015, cases declined by 44% from 2.03 million to 1.13 million and deaths declined by 69% from 932 to 287 annually. Falciparum percentage remained around 50% from 2000 to 2013 but rose to 65.6% in 2014 and 67.1% in 2015 in India. [7]

Therefore, we aim 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.

Material & Method:

The study was carried out on 150 patients admitted during the period of seven months in the hospital. It was a prospective cohort study.

A full history was recorded, followed by a thorough clinical examination to determine clinical severity, and all of the patients in this study were found to have malaria, either through peripheral smear examination (both thick and thin smear), MPQBC, or malarial antigen assay. These tests were required before the antimalarial medication could begin. This study excluded patients under the age of 18 years, pregnant women, and patients with fever from any other cause.

After being diagnosed with malaria, the patient was started on anti-malarial medicines in accordance with the current WHO recommendations for malaria therapy. Other supportive treatments were given based on the patient's needs.

This was a descriptive study, which was done in the Vardhman Institute of Medical sciences, Pawapuri, Nalanda, Bihar, India.

Results:

In the present study, out of 150 patients more number of males (93 patients) were affected when compared to females (57 patients). Male to female ratio was 1.7:1.3 (Figure 1).

The predominant age group affected was 20-30 years, which constitutes to about 50.6%, followed by 31-40 years (25.3%). The mean age of in this study was 35.77 years (Figure 2).

Majority of these patients were from rural areas i.e. 55 patients and 43 patients from the urban people. (Table 1).

Fever is the most common presentation in all 150 patients both falciparum and vivax infected patients. This is followed by chills and rigors was present in 67.3% patients, 52% of patients with falciparum and 31.3% of the patients infected with vivax. Nausea and vomiting where another common complaint was observed in 60% of total patients, more in falciparum 34.7% than vivax 26%. All these manifestations were most commonly observed in falciparum than vivax (Table 2).

Pallor was the most common clinical sign, was observed in 82 patients of falciparum and 61 with vivax species. Splenomegaly was second common clinical sign, found in

69 of all patients. These were followed by icterus, more in falciparum 82 and 61 with vivax species. **(Table 3)**

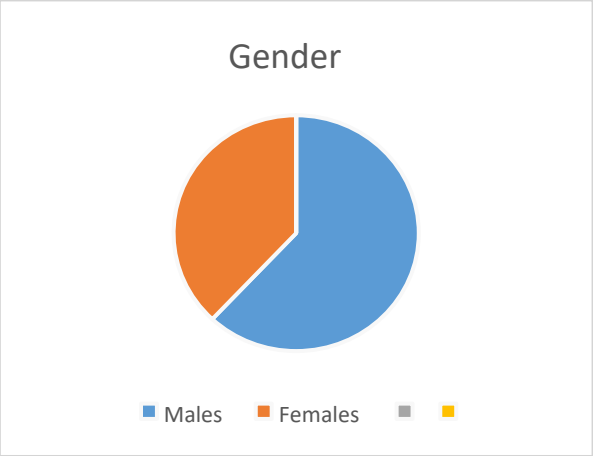

Figure 1: Gender distribution.

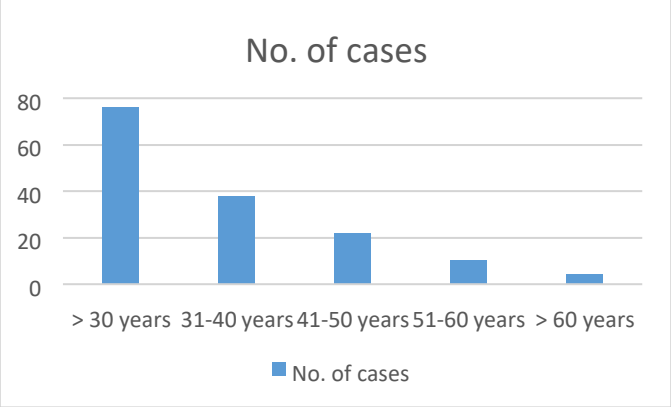

Figure 2: Age distribution.

Table 1: Urban and rural distribution.

Area	Male	Female	Total
Urban	43	27	70
Rural	55	25	80
Total	98	52	150

Table 2: Clinical symptoms

Symptom	P. Falciparum	%	P. Vivax	%	Total	%
Fever	150	100	150	100	150	100
Chills and rigors	78	52	47	31.3	101	67.3
Easy fatigability	33	22	24	16	48	32
Nausea, vomiting	52	34.7	39	26	90	60
Cough	20	13.3	7	4.67	26	17.3
Altered sensorium	16	10.7	0	0	17	11.3

Table 3: Clinical signs in different species.

Symptoms	Falcifarum	Vivax
Pallor	82	61
Icterus	40	32
Pedal Edema	28	11
Splenomegaly	69	39
Hepatomegaly	27	9
CNS involvement	31	0

Discussion:

P. vivax malaria has been considered to be a benign form of malaria, with low mortality12 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.[9]

In studies like Yadav RK et al, and Surve KM et al, had similar rates of male: female ratio which is 1.32:1 in both.[10, 11]In other studies like Khuraiya P et al, and Patel G et al.[11, 12] also some near similar rates above studies which are 1.26: 1 and 1.30:1 respectively. Some studies showed very high incidence in males compared to females like Kalavati GP et al, showed a very high male incidence which is more than three times that of the female which is 3.38:1.[13]Vaidya MS et al, study showed more than the double ratio of incidence of malaria in males compared to females.[14]

In the present study is the incidence of falciparum malaria is higher which 54% is, and the incidence of vivax malaria and mixed infections are 44% and 2% respectively. In the study by Alberto Tobin et al, the prevalence of falciparum is 62.6% and whereas vivax was just 35.2% and mixed infection was 2.1% [15] In another study by Milind Y Nadkar et al, incidence of vivax malaria was 68.53% and falciparum malaria was 31.47%, and 0% incidence of mixed infections was observed.[16] In another study by Arevalo et al incidence of vivax and falciparum malaria was almost equal, 50.7% by falciparum and 48.9% by vivax malaria and only 0.4% by mixed species.[17]From these observations we can conclude that the incidence of particular species varies with geographical area.

Conclusion:

Malaria is a fairly common disease in our country. Early detection and treatment of severe malaria, which is mainly caused by the falciparum rather than the vivax, reduces mortality and morbidity.

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