ISSN: 0975-3583,0976-2833 VOL14, ISSUE4, 2023

Original Research Article

To study the clinical symptoms and hematological changes in cases of malaria.

Dr. Atishay Jain[1] (Assistant Professor) & Dr. Akanksha Jain[2] (Demonstrator)
Dept. of Medicine, N.S.C.B. Medical College, Jabalpur, M.P.[1]

N.S.C.B. Medical College, Jabalpur[2]
Corresponding Author: Dr. Akanksha Jain

Abstract:
Background & Method: The aim of the study is to study the clinical and hematological changes in cases of malaria. Malaria card test, Hemoglobin, Total WBC count, Differential WBC count, Platelet count, Blood sugar, Blood urea, Serum creatinine, Serum electrolyte, Serum bilirubin direct, indirect and total, SGOT And SGPT, Urine for routine microscopy, USG abdomen was done.
Result: The most common symptom, being present in 100% cases is fever was associated with chills & rigor in 90.38% cases. On neurological system most common symptom was headache, being present in 31.73% cases, in gastroenterological system most common symptom was nausea/vomiting, being present in 52.88% cases, in renal system most common symptom was decreased urine Output, being present in 12.5% cases and in cardiopulmonary system most common symptom was difficulty in breathing being present in 8.65% cases.
Conclusion: Maximum incidence was observed in the young patients aged 12-30 years, In a total of 104 patients 58 were male patients and 46 were female patients which shows that there is male preponderance. Fever was the commonest presenting symptom present in 100% of cases followed by chills and rigors seen in 90.38%.

Keywords: clinical, hematological & malaria.

Study Designed: Cross Sectional Study.

1. Introduction

Most of these are attributable to P. falciparum, but P. vivax and P. knowlesi can also cause severe disease. Malaria deaths peaked at 1.82 million in 2004 and fell to 1.24 million in 2010 (714,000 children <5 years and 524,000 individuals ≥5 years); over 80 percent of the deaths occur in sub-Saharan Africa[1].
Important components for reducing the burden of malaria morbidity and mortality include more sensitive diagnostic tools, effective use of antimalarial drugs, and improved personal and community protection and mosquito control[2].
Most of these are attributable to P. falciparum, but P. vivax and P. knowlesi can also cause severe disease. Malaria deaths peaked at 1.82 million in 2004 and fell to 1.24 million in 2010 (714,000 children <5 years and 524,000 individuals ≥5 years); over 80 percent of the deaths occur in sub-Saharan Africa[3&4].
Important components for reducing the burden of malaria morbidity and mortality include more sensitive diagnostic tools, effective use of antimalarial drugs, and improved personal and community protection and mosquito control[5&6].

2. Material & Method

The present study is hospital based prospective being undertaken in the Department of pathology & Department of Medicine at NSCB, Jabalpur, M.P. for 01 Year.
A detailed history, clinical examination and laboratory investigations including Peripheral smear examination for malaria parasite, Malaria card test, Hemoglobin, Total WBC count, Differential WBC count, Platelet count, Blood sugar, Blood urea, Serum creatinine, Serum electrolyte, Serum bilirubin direct, indirect and total, SGOT And SGPT, Urine for routine microscopy, USG abdomen was done.

Inclusion criteria

- All patients above 12 years of age.
- Patient positive for malaria parasite by peripheral smear.

Exclusion criteria

- Patients less than 12 years of age.
- Patient negative for malaria parasite by peripheral smear.
- Patients having other co-infections like Enteric fever, dengue fever, sepsis, UTI, meningitis, encephalitis etc.

ISSN: 0975-3583,0976-2833 VOL14, ISSUE4, 2023

3. Results

Table 1: Age & Sex Distribution of Malaria

	Male			Total	Female			Total
	P. Falciparum	P. Vivax	Mixed	Male	P. Falciparum	P. Vivax	Mixed	Female
12 to 20	04	09	00	13	06	06	00	12
21 to 30	15	04	00	19	08	08	01	17
31 to 40	06	04	00	10	02	03	01	06
41 to 50	03	05	00	08	01	01	00	02
51 to 60	02	03	00	05	03	03	00	06
>60	02	00	01	03	01	02	00	03

The study was carried on population above 12 year age group only. The above table shows highest incidence was in the age group of 21-30 years. In a total of 104 patients there were 58 male patients and 46 female patients. The mean age for male was 33.60±15.68 years and for female it was 32.74±17.83 years and overall mean age ±2SD is 33.22±16.59 years.

Table 2: Clinical symptoms of Malaria and their incidence

Symptoms	Cases				%			
	P. falciparum	P. Vivax	Mixed	Total	P. Falciparum	P. Vivax	Mixed	Total
Fever	53	48	3	104	100	100	100	100
Chills & Rigor	47	44	3	94	88.67	91.66	100	90.38
Headache	17	14	2	33	32.07	29.16	66.6	31.73
Altered Sensorium	10	4	0	14	18.86	8.33	0	13.46
Seizures	6	1	1	8	11.32	2.08	33.3	7.69
Decreased urine Output	7	4	2	13	13.2	8.33	66.6	12.5
Dark urine	7	3	1	11	13.2	6.25	33.3	10.57
Nausea/Vomiting	27	26	2	55	50.94	54.16	66.7	52.88
Diarrhoea	4	1	0	5	7.54	2.08	0	4.8
Jaundice	15	6	3	24	28.3	12.5	100	23.07
Difficulty In Breathing	5	3	1	9	9.43	6.25	33.3	8.65
Bleeding manifestations	2	0	1	3	3.77	0	33.3	2.88

In our study fever was the most common symptom, being present in 100% cases. The fever was associated with chills & rigor in 90.38% cases. On neurological system most common symptom was headache, being present in 31.73% cases, in gastroenterological system most common symptom was nausea/vomiting, being present in 52.88% cases, in renal system most common symptom was decreased urine Output, being present in 12.5%

ISSN: 0975-3583,0976-2833 VOL14, ISSUE4, 2023

cases and in cardiopulmonary system most common symptom was difficulty in breathing being present in 8.65% cases.

4. Discussion

In our study only Patients aged more than 12 year were included. The maximum number of cases were seen in between 12-30 years of age (58.65%). The mean age±2SD for male were 33.60±15.68 years and for female 32.74±17.83 years[7]. The mean age±2SD of P.vivax and P.falciparum infected patients were 33.52±16.83 and 32.43±16.12 years respectively.

In our study 56% patients were male and 44% were female. This data is not statistically significant[8]. The cause of this relative male preponderance in our study could be due to more outdoor activities in males[9].
In our study out of 104 patients there were 53 (50.96%) patients of P.falciparum, 48 (46.15%) of P.vivax and 3 (2.88%) patients of Mixed infection. Reported that there is rising trend in the incidence of P.falciparum from 21% in 1982 to 41% in 1992. According to the World Malaria Report 2014, there are more cases of P.falciparum than P.vivax[10&11]. A higher incidence of P.falciparum in Bikaner. Our study also corroborates the same findings suggesting a further increase in the incidence of P.falciparum[12].

5. Conclusion

Malaria though potentially treatable, still kills many patients every year in India. The infection with P.falciparum and P.vivax causes significant changes in hematological patients. Maximum incidence was observed in the young patients aged 12-30 years, In a total of 104 patients 58 were male patients and 46 were female patients which shows that there is male preponderance. Fever was the commonest presenting symptom present in 100% of cases followed by chills and rigors seen in 90.38%.

6. References

1. Ladhani S, Lowe B, Cole AO, Kowuondo K, Newton CR. Changes in white blood cells and platelets in children with falciparum malaria: relationship to disease outcome. Br J Haematol 2002 Dec;119(3):839-847.
2. Bell DR, Jorgensen P, Christophel EM, Palmer KL. Malaria risk: estimation of the malaria burden. Nature 2005 Sep;437(7056):E3-E4, discussion E4-E5.
3. Reyburn H, Mbakilwa H, Mwangi R, Mwerinde O, Olomi R, Drakeley C, et al. Rapid diagnostic tests compared with malaria microscopy for guiding outpatient treatment of febrile illness in Tanzania: randomised trial. BMJ 2007 Feb;334(7590):403.
4. Faseela TS, Ronald AR, Anita KB, Chaithra SM, Yashwanth R. Diagnostic Value of Platelet Count in Malaria. Journal of Clinical and Diagnostic Research 2011;5:464-466.
5. Malik AM, Zaffar N, Ali Nadir, Malik AM, Khan R. Hematological Findings And Endemicity of Malaria In Gadap Region. Journal of the college of Physians and Surgeons 2010; 20:112-116.
6. Beg MA, Sani N, Mehraj V, Jafri W, Khan MA, Malik A, et al. Comparative features and outcomes of malaria at a tertiary care hospital in Karachi, Pakistan. Int J Infect Dis 2008 Jan;12(1):37-42.
7. Maciaszek JL, Lykotrafitis G. Sickle cell trait human erythrocytes are significantly stiffer than normal. J Biomech 2011;44(4):657–61.
8. Kumar S, Bandyopadhyay U. Free heme toxicity and its detoxification systems in human. Toxicol Lett 2005;157(3):175–88.
9. Kreuels B, Kreuzberg C, Kobbe R, Ayim-Akonor M, Apiah-Thompson P, Thompson B, et al. Differing effects of HbS and HbC traits on uncomplicated falciparum malaria, anemia, and child growth. Blood 2010;115(22):4551–8.
10. Fairhurst RM, Baruch DI, Brittain NJ, Ostera GR, Wallach JS, Hoang HL, et al. Abnormal display of PfEMP-1 on erythrocytes carrying haemoglobin C may protect against malaria. Nature 2005;435(7045):1117–21.
11. Makani J, Komba AN, Cox SE, Oruo J, Mwamtemi K, Kitundu J, et al. Malaria in patients with sickle cell anemia: burden, risk factors, and outcome at the outpatient clinic and during hospitalization. Blood 2010;115(2):215–20.
12. McAuley CF, Webb C, Makani J, Macharia A, Uyoga S, Opi DH, et al. High mortality from Plasmodium falciparum malaria in children living with sickle cell anemia on the coast of Kenya. Blood 2010;116(10):1663–8.