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RESEARCH ARTICLE

STUDY OF CLINICAL PROFILE OF P.FALCIPARUM MALARIA IN TERTIARY CARE HOSPITAL

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ABSTRACT

Malaria being one of the common infections in tropical country like india, this study is based on clinical profile, complications, laboratory investigations as well as prognosis of P. FALCIPARUM malaria.

INTRODUCTION

Malaria is probably one of the oldest diseases known to mankind that has profound impact on our history. For centuries it prevented any economic development in vast regions of the earth. In South East Asia (the second most affected region in the world), India has the highest malaria burden (with an estimated 24 million cases per year) [Coatney, 1971], followed by Indonesia and Myanmar. In India, according to NVBDCP 2014 to September 2018 report, there were about 2.9 millions of new cases of plasmodium falciparum malaria and 1620 deaths were recorded from 2014 to september 2018, C.U.Shah hospital located in Surendranagar which is a rural locality. We get patients from surrounding rural localities as well nearby urban areas. With this background, we decided to conduct a study in this tertiary care center in Surendranagar to note the changing clinical profile of patients admitted with P.falciparum malaria along with its complications and outcome. All through study (in diagnosis and management) guidelines given by WHO were followed.

AIMS AND OBJECTIVES

- To study the different clinical profile in a patient with plasmodium falciparum malaria.
- To determine the hematological abnormalities in patients with plasmodium falciparum malaria.

- To correlate the hematological and clinical profile with the severity and final outcome.

MATERIALS AND METHODS

This prospective study was conducted in C.U.Shah Medical Hospital during period of 1 year after obtaining approval from Saurashtra University Ethical Committee. Total 100 patients were included in this study.

Methodology: Patients who were diagnosed having P.falciparum malaria by conventional microscopy, after obtaining written and informed consent from them, they were all screened for possible inclusion in the study based on inclusion and exclusion criteria.

Inclusion Criteria

- Patients belonging to either sex.
- Age > 18 years.
- Fever (axillary temp $\geq 37.5^{\circ}\text{C}$) at the time of examination or history of fever during preceding 48 hours.
- Patients with atypical symptoms
- Peripheral smear positive for Plasmodium falciparum.
- Patients giving informed/written consent.

Exclusion Criteria

- Age < 18 year.
- Presence of P. Vivex on peripheral smear.
- Patients diagnosed having mixed infections (P.vivax and P. falciparum).

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Table 1. Age and Sex distributions

Age In Year	Male (n= 66)	Female (n= 24)	Total n=100(%)
18-30	27(40.90)	12(50%)	39(39%)
31-40	18(27.2)	03(12.5)	21(21%)
41-50	09(13.6)	04(16.6)	13(13%)
51-60	07(10.6)	01(4.16)	08(08%)
61-70	02(3.03)	03(12.5)	05(05%)
71-80	03(4.54)	01(4.16)	04(04%)

Table 2. Habitat

Age In Year	Male (n= 66)	Female (n= 24)	Total n=100(%)
18-30	27(40.90)	12(50%)	39(39%)
31-40	18(27.2)	03(12.5)	21(21%)
41-50	09(13.6)	04(16.6)	13(13%)
51-60	07(10.6)	01(4.16)	08(08%)
61-70	02(3.03)	03(12.5)	05(05%)
71-80	03(4.54)	01(4.16)	04(04%)

Habitat	No. of Cases n=100
Urban	24(24%)
Rural	76 (76%)

Table 3. Clinical presentation of P.FALCIPARUM malaria

Type of Malaria	Total n=100(%)
Uncomplicated	65(65%)
Complicated	35(35%)

Table 4 (A): Symptomatology of uncomplicated P. falciparum malaria

Presenting Symptoms	Male (n=66)	Female (n=34)	Total n=100
Fever with chills	66(66%)	34(34%)	100(100%)
Headache and Bodyache	36(54.5%)	20(58.8%)	56(56%)
Vomiting	44(66.6%)	30(88.2%)	74(74%)
Pain in abdomen	30(45.4%)	12(35.2%)	42(42%)
Diarrhoea	03(8.8%)	02(3.03%)	05(05%)

Table 4 B. Symptomatology of complicated P. falciparum malaria

Presenting Symptoms	Male (n=66)	Female (n=34)	Total n=100(%)
Jaundice	06(9.09%)	08(23.5)	14(14%)
Altered Sensorium	05(7.5%)	04(11.7%)	09(09%)
Decreased Urine Output	08(12.1%)	04(11.7%)	12(12%)
Cough and breathlessness	06(9.09%)	02(5.8%)	08(08%)
Bleeding Manifestation	03(4.54%)	02(5.88%)	05(05%)

Table 5 (A): Duration of symptoms

< 3 days			- 7 days			>7 days		
Male	Female	Total	Male	Female	Total	Male	Female	Total
09	07	16(16%)	56	19	75(75%)	06	02	08(08%)

Table 5 B. Duration of symptoms and complications

< 3 days			3- 7 days			>7 days		
Uncomp-licated	Complic-ated	Total	Uncomp-licated	Comp-licated	Total	Uncomp-licated	Comp-licated	Total
08	08	16(16%)	55	20	75(75%)	02	06	08(08%)

Table 6. Clinical Signs

Signs	Male (n=66)	Female (n=34)	Total n=100(%)
Splenomegaly	16(24.2%)	08(23.5%)	24(24%)
Hepatomegaly	34(51.5%)	24(70.5%)	58(58%)
Icterus	06(9.09%)	10(29.4%)	16(16%)
Pallor	10(15.1%)	08(23.5%)	18(18%)
Altered Higher Function	05(7.5%)	04(11.7%)	09(09%)
Respiratory Rales	16(24.2%)	06(17.6%)	22(22%)
Petechia	03(4.54%)	02(5.88%)	05(05%)
Oedema	06(9.09%)	03(8.8%)	09(09%)

Table 7 A. Complication Patterns (According to WHO guidelines)

Criteria	Male (n=66)	Female (n=34)	Total (n=100)
Hepatitis (T. bilirubin>3mg/dl)	10(15.1%)	12(35.2%)	22(22%)
Anaemia (Hb <5gm %)	14(21.2%)	12(35.2%)	26(26%)
Cerebral malaria	08(12.1%)	04(11.7%)	12(12%)
Renal failure (S. creatinine > 3 mg %)	12(18.1%)	06(17.6%)	18(18%)
Spontaneous bleeding, DIC	02(3.03%)	01(2.94%)	03(03%)
Pulmonary oedema, ARDS	04(6.06%)	06(17.6%)	10(10%)
Circulatory collapse, Shock (SBP <70 mmHg)	06(9.09%)	02(5.8%)	08(08%)
Metabolic acidosis (PH < 7.25, bicarbonate < 15mmol/L)	04(6.06%)	02(5.8%)	06(06%)
Hypoglycemia (RBS < 40 mg/dl)	02(3.03%)	03(8.8%)	05(5%)
Hemoglobinuria (black urine)	05(7.5%)	04(11.7%)	09(09%)

Table 7 B. Number of complications

Number of complications	Total (n=34)
One	08(23.5%)
Two	12(35.29%)
Three or more	14(41.17%)

Table 8. Individual complication Vs duration of symptoms

	<3 days (n=10)	3-7days (n=67)	>7 days (n=24)	Total (n= 101)
Hepatitis	02	18	02	22
Severe anaemia	06	14	06	26
Renal failure	00	10	04	14
Cerebral malaria	00	04	04	08
Spontaneous bleeding	00	01	02	03
ARDS	02	06	02	10
Shock	00	04	04	08
Hypoglycemia	00	04	00	04
Acidosis	00	06	00	06

- Presence of concomitant bacterial infection.
- Patients who refused to give the written consent.
- Patients giving history of consumption of antimalarials or antibiotics with antimalarial activities in past 7 days.

CONCLUSION AND DISCUSSION

- This prospective study included 100 patients (66 males and 24 females). Thus male: female ratio was 2.8:1, reflecting male preponderance.
- Age ranged between 18 to 80 years. Age distribution patterns showing majority of patients 65% were below age 40 and prevalence declined with increasing age and fall sharply beyond 60 year.
- Majority of patients 76 % were from rural area.
- 65% patients presented with uncomplicated malaria. However 35% presented with severe and complicated malaria as per WHO guidelines.
- Fever with chills was found in all (100) patients, & out of them 74 percent patients had vomiting. Followed by headache, bodyache, abdominal pain and diarrhoea.
- 34% presented with symptoms suggestive of complicated or severe forms of malaria which included jaundice (14%), altered sensorium (9%), decreased urine output(12%), cough & breathlessness(8%) and bleeding manifestations(18%) like hemoptysis and hematuria.
- Hepatomegaly was most common clinical sign found in 58% patients followed by Splenomegaly(24%) , icterus(16%) , pallor (18%) , altered higher functions (9%) , respiratory rales (22%).

- 16 % patients presented within 3 days starting of symptoms, of these 8 patients had complication. Number of Patients present in between 3-7 days of symptoms was 75%, of which 20 patients had complications. However 8 % who patients presented with duration of symptoms more than 7 days, 6 percent patient had one or more complications of malaria. Distribution pattern revealed that patients presenting with longer duration had highest rate of complication. These differences were statistically highly significant (P value < 0.001).
- Among 34% complicated P. Falciparum malaria patients most common complication observed was anaemia in 26 percent patient followed by severe Hepatitis (22%), renal failure (18%) ,spontaneous bleeding (14%), cerebral malaria(12%), ARDS in 10 percent patient, Hemoglobinuria in 9 percent patient and Hypoglycaemia in 5 percent patient.
- Majority of patient 23.5 % had 1 complication , 35.29 % patients had 2 complications and 41.17% patient developed more than 3 complications.(Out of 34 complicated)
- Majority of patients 91 % with one and two complications recovered completely. However 9 percent patient with 3 or more complications died due to multi organ failure.
- Thrombocytopenia (<1.5 lakh) was found in 94% patients. So it is most significant finding.
- Mean duration of hospital stay in 65 uncomplicated P. falciparum malaria patients had mean 4.18 ± 1.50 SD. Among 35 complicated P.falciparum malaria patients duration of hospital stay were mean 7.59 ± 2.91 SD days.

- Mean of haemoglobin level in 65 uncomplicated *P. falciparum* malaria patients had mean 11.95 ± 1.98 SD. Among 35 complicated *P.falciparum* malaria patients level of haemoglobin were mean 6.59 ± 3.77 SD.
- Mean of platelet count in 65 uncomplicated *P. falciparum* malaria patients had mean 82151.52 ± 56713.11 SD. Among 35 complicated *P.falciparum* malaria patients had mean 40941.18 ± 46983.52 SD.

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