

## **Clinico-haematological Profile of Falciparum Malaria in a Rural Hospital of Tripura.**

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### **Abstract :**

**Aim:** To study the clinico-haematological profile malaria in a rural hospital of Tripura.

**Material and methods:** A cross-sectional hospital-based study was done from at Kulai District Hospital, Tripura. This hospital based cross sectional study was done on 60 confirmed cases of falciparum malaria (either by peripheral smear or rapid diagnostic test) admitted in Kulai District Hospital. A case sheet proforma was prepared and data (demographic profile, clinical feature, investigation, treatment, and complication) from all indoor patients was collected and analyzed.

**Result:** Out of 60 patients, 40(66.6%) were males and 20 (33.4%) were females. Most of the patients were between the age group 21-40 years with the highest prevalence between the age group of 21-30. Fever was the most common symptom. Anemia was present in 42(70%) patients, out of which 6(10%) patients had severe anemia. Thrombocytopenia was present in 36(60%) patients. Abnormal liver function tests were observed in 26(43.3%) subjects while abnormal kidney function tests were observed in 16(26.6%) patients. All the 60 patients received Artemisinin based antimalarial drugs.

**Conclusion:** Early detection, prompt management, and adequate supportive therapy may reduce mortality due to falciparum cerebral malaria.

**Keyword:** Malaria, Thrombocytopenia, Artesunate, Rapid diagnostic test.

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### **I. Introduction**

Malaria is endemic in India with an estimated 70-100 million cases each year, out of which 45-50 % are plasmodium falciparum.<sup>1</sup> The considerable mortality and morbidity in falciparum malaria is due to its protean manifestations, multiorgan involvement, and delay in diagnosis and failure of administration of treatment promptly and adequately. The emergence of drug resistance adds to the seriousness of the problem.<sup>2</sup>

Kulai District hospital covers the areas of Tripura which are highly endemic region for falciparum malaria. This hospital based cross sectional study is aimed at to study the clinico-haematological profile malaria in a rural hospital in Tripura.

### **II. Material and Method:**

This study was conducted in Kulai District hospital, Tripura. Case input is primarily from this region and also from bordering districts and states. This was hospital based cross sectional study done on confirmed cases of falciparum malaria admitted in hospital from July to octobar 2015. Total sample size is 60. All patients were informed about the study and informed consent was obtained. A case sheet proforma was prepared and data (demographic profile, clinical features, investigations, treatment, and complication) were filled and analyzed.

**Inclusion Criteria:** All the cases tested positive for falciparum malaria (either by peripheral smear or rapid diagnostic test) and treated in the medicine ward in the age group of 12 years and above were included.

**Exclusion Criteria:** Patients presenting with fever (malaria smear and rapid diagnostic test negative) but treated empirically for malaria were excluded from study and patient presenting with clinical feature mimicking malaria (malaria parasite test negative) were excluded.

#### **Statistical analysis**

Statistical analyses were performed using the Statistical Package for the Social Science (SPSS). The categorical variables were shown as numbers of cases with percentage, and the continuous variables were shown as mean  $\pm$  standard deviation (SD). A *P* value of  $\leq 0.05$  was considered statistically significant.

### **III. Result:**

A total of 60 subjects were hospitalized, out of which 40(66.6%) were males and 20 (33.4%) were females. Out of 60 subjects, 41(68.3%) were falciparum malaria while 19(31.7%) were mixed infection (both falciparum + vivax). Most of the patients were between the age group of 21-40 years with the high prevalence between the age group of 21-30 years. Majority of cases were from Dhalai district (45) and the rest (15) were from nearby districts.

Table 1 : Clinical symptoms of patients admitted in hospital

Symptoms	No.of cases(n=60)
Fever	60(100%)
Altered consciousness	10(16.6%)
Jaundice	14(23.3%)
Vomiting	11(18.3%)
Loose motion	6(10%)
Decreased urine output	6(10%)
Generalised weakness	6(10%)
Abdominal pain	5(8%)
Headache	10(16.6%)
Cough	4(6.6%)
Hematuria	2(3.3%)
Seizure	1(1.6%)

Symptom analysis on admission showed that all the cases (100%) had fever with range of 1 to 20 days with mean duration of 6.68±4.24 days. The fever is followed by impaired consciousness in 10 patients (16.6%) (Table 1).

Table 2 : Physical signs

Signs	No.of cases(n=60)
Fever	60(100%)
Pallor	42(70%)
Icterus	26(43.3%)
SBP<90mmhg	8(13.3%)
Hepatomegaly	20(33.3%)
Splenomagaly	24(40%)
Hepatosplenomegaly	20(33.3%)
Crackles	6(10%)
Meningeal irritation	1(1.6%)

General physical signs on admission were 42 (70%) subject had pallor, 26(43.3%) had icterus, 8 (13.3%) had systolic blood pressure <90 mm of mercury, hepatomegaly was observed in 20(33.3%), splenomegaly was present in 24(40%) while hepatosplenomegaly was observed in 20(33.3%).Respiratory sign (crackle) was observed in 6(10%) while 1 (1.6%) subject had meningeal irritation (Table 2).

Table No.3 Data of abnormal biochemical findings

Parameter	No.of cases(n=60)
Severe Anemia(Hb%<7gm%)	6(10%)
Leucocytosis	1(1.6%)
Leucopenia	12(20%)
Thrombocytopenia	36(60%)
Increased serum bilirubin>2 mg/dl	26(43.3%)
Serum creatinine >1.6 mg/dl	16(26.6%)

On routine blood investigation mean Hb level 9.34±2.7 gm/dl with severe anemia (Hb level <7 gm%) was observed in 6(10%) patients, leucocytosis was observed in 1(1.6%) patient while leucopenia was present in 12(20%) patients (Table 3). Thrombocytopenia was present in 36(60%) patients. Abnormal liver function test (increased serum bilirubin) was observed in 26(43.3%) subjects, out of which liver enzyme (SGOT and SGPT) was raised in 13 patients. An abnormal kidney function test was observed in 16(26.6%) patients.10 patients had impaired consciousness, out of which 3(5%) patients had unarousable coma (cerebral malaria), 3 patients had associated jaundice and 3 patients had severe renal impairment(serum creatinine >3 mg/dl). 10 patients had clinical jaundice plus evidence of other vital organ dysfunction. 6 patients had severe anemia (Hb <7 gm/dl). 5 patients had severe renal impairment (serum creatinine >3 mg/dl).

All the 60 patients received Artemisinin based antimalarial drugs. Out of 60 patients, 54 subjects recovered completely, 1 subjects went discharge against medical advice, 1 subjects expired while 4 subjects were referred to higher centre for further management.

#### **IV. Discussion:**

This cross sectional study shows males (66.6%) were affected more as compared to females (33.4%) with the high incidence between the age group of 21-30 years.<sup>3</sup>

In present study fever was the most common symptom which is followed by impaired consciousness in 10(16.6%) patients. Out of 10 patients, 3(5%) patients had unarousable coma (cerebral malaria). The reported prevalence of cerebral malaria in endemic area is between 2-55%<sup>3</sup>, which is similar to this study. In this study, patients demonstrated atypical symptoms such as vomiting in 11(18.3%), loose motion in 6(10%), cough in 5(6.6%), and abdominal pain in 5(8%) patients. This is similar to other study of Deb T et al, which have reported the prevalence the atypical presentation of falciparum malaria comprising convulsion in 28.55%, abdominal pain in 5.7%, generalized weakness and palpitation in 5.5% cases<sup>4</sup>. In one study from orissa, 86.7% had anemia and 10% had severe anemia.<sup>5</sup> The present study demonstrated anemia in 42(70%), out of which 6(10%) subject had severe anemia.

Thrombocytopenia has been reported to be associated with malaria with incidence ranging from 40.5% to 85%.<sup>6,7</sup> Thrombocytopenia is thought to be caused by increased splenic sequestration, immune mediated destruction and shortened platelet survival.<sup>8</sup> The present study demonstrated thrombocytopenia in 36(60%) patients, similar to other studies. The present study showed hyperbilirubinemia in 26(43.3%) patients. Chowta MN et al, in one study from KMC Hospital, Attavar, showed that 11 patients (20%) had Hyperbilirubinemia.<sup>9</sup>

In this study 1 patients expired, mortality rate was 1.66%. Cause of death was aspiration pneumonia secondary to seizure, cerebral malaria and circulatory shock. The present study has less mortality compared to 33.5% in a larger study done in Bikaner Rajasthan.<sup>10</sup>

Early diagnosis, anticipation of complications, close monitoring of vital parameters and combination therapy to overcome drug resistance perhaps helped to curtail the extent of mortality in this study.

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