

# THROMBOCYTOPENIA IN HOSPITALIZED MALARIA PATIENTS

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## ABSTRACT

**Objective:** To assess the occurrence and severity of thrombocytopenia in hospitalized Malaria patients.

**Design and Setting:** Prospective hospital based case series from August 2003 to December 2004 conducted in the medical unit of tertiary care center.

**Patients and Methods:** All hospitalized patients with acute febrile illness without localizing signs were considered for the study. Peripheral smear examination for malarial parasite was taken as a gold standard for the diagnosis of malaria. Those with positive MP were then included in the study. Hematological parameters were determined by using automated analyzer. Those with reduced platelet count were re-evaluated with manual method.

**Result:** A total of 128 patients were subjected for malaria testing during the study period. Sixty patients had a positive peripheral smear. Fifty one (85%) were *P falciparum* positive and 9 (15%) were *P vivax* positive. Forty two (70%) patients had thrombocytopenia. Thirty two were (76%) male and ten (24%) female. Thirty nine (93%) patients with thrombocytopenia were *P falciparum* positive and only 3 (7%) patients had *vivax* malaria. Thrombocytopenia was mild in 29 (70%) patients, moderate in 9 (22%) and severe in 4 (8%) patients.

**Conclusion:** Higher frequency of mild to severe thrombocytopenia was observed in hospitalized patients, which should alert the possibility of malarial infection. In these cases *P falciparum* was found to be common species.

**KEY WORDS:** Malaria, thrombocytopenia, occurrence, severity, hospitalized patients.

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## INTRODUCTION

Malaria is one of the most prevalent human infection worldwide resulting in 300 to 500 million cases each year.<sup>1</sup> Over 40% of world population lives in malaria endemic area including southeast Asia, India, Pakistan, Bangladesh, Africa, areas of middle east, Central and South America.<sup>2</sup> Pakistan being a part of endemic belt has an incidence of one

case per thousand populations.<sup>3,4</sup> Severe malaria has been a major cause of mortality worldwide and *Plasmodium falciparum* is the main species for most of these deaths.<sup>5</sup> Clinically malaria mimics many diseases and there are no absolute diagnostic clinical features. Hematological abnormalities have been observed in patients with malaria, with anemia and thrombocytopenia being the most common.<sup>6</sup> We conducted this study to assess the occurrence and severity of thrombocytopenia in hospitalized patients of malaria.

## PATIENTS AND METHODS

All consecutive hospitalized patients with fever of less than seven days in duration and without localizing signs were considered for study. Patients with malarial parasite seen on peripheral blood film were included in the study. Hematological parameters were determined by using automated analyzer. Those

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with reduced platelet count were reevaluated by manual method. Patients with thrombocytopenia were divided in to three categories.

1. Mild thrombocytopenia <150,000 to >50,000/l.
2. Moderate thrombocytopenia <500,000 to >20,000/l.
3. Severe thrombocytopenia <20,000/l.

**Exclusion criteria:** Patients with acute febrile illness and negative MP on peripheral blood film in three consecutive samples at intervals of twelve hours were excluded. Similarly patients where localizing cause of fever could be determined, patients with history or clinical features suggesting chronic liver disease and those patients with history of bleeding disorder, thrombocytopenia or purpura and those with history of drug intake such as fansidar, septran, thiazides and chemotherapeutic agents were also excluded.

## RESULTS

A total of 128 patients were subjected for malaria testing during the study period. Sixty (47%) patients had positive peripheral smear for malarial parasite. Out of these 51 (85%) were *P. falciparum* positive and 9 (15%) were *P. vivax* positive. Forty two (70%) patients had thrombocytopenia. Thirty two (76%) were males and 10 (24%) females. Forty (95%) patients with thrombocytopenia were suffering from *falciparum* malaria and only 2 (5%) had *vivax* malaria. Twenty nine (70%) patients had mild thrombocytopenia, nine (22%) had moderate and four (8%) had severe thrombocytopenia. None of these patients required platelet transfusion. Hemoglobin of less than 10g/dl was found in 18 (43%) patients and all these were suffering from *falciparum* malaria.

## DISCUSSION

Malaria is one of the common causes of acute febrile illness in our country but the clinical diagnosis is often difficult. Hematological abnormalities are common. Thrombocytopenia occurs in 60-80%<sup>7</sup> and anemia in 25%.<sup>8</sup> Finding of thrombocytopenia with anemia is an

important clue to the diagnosis of malaria in patients of acute febrile illness.<sup>9</sup> In this study 70% of patients suffering from malaria showed some degree of thrombocytopenia. These figures are comparable to studies done by other investigators as 71% by Robinson<sup>10</sup> and 58.97% by Rodringuez et al.<sup>11</sup>

Thrombocytopenia is considered to be an important predictor of severity in childhood *falciparum* malaria.<sup>12</sup> Thrombocytopenia together with anemia was found in 43% of our cases. Bashwari et al from Saudi Arabia has reported anemia in 60% and Thrombocytopenia in 53% of cases.<sup>13</sup> Thrombocytopenia is seen in patients with acute febrile illness due to viral causes as well but its presence is considered an important diagnostic clue for malaria in endemic areas as suggested by previous investigator<sup>14</sup> and particularly so when associated with anemia.<sup>15</sup> Hence patients with acute febrile illness without localizing signs and having combination of anemia and thrombocytopenia should alert the treating physician about the possibility of malaria infection which can be confirmed with specific tests.

## CONCLUSION

Higher frequency of mild to severe thrombocytopenia was observed in hospitalized patients suffering from malaria, and *plasmodium falciparum* was found to be common species in these cases. Finding of thrombocytopenia is of diagnostic help, as it raises the suspicion of malaria particularly in hospitalized patients.

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