THROMBOCYTOPENIA IN YOUNG SOLDIERS ADMITTED WITH BENIGN TERTIAN MALARIA AT CMH PANO AQIL

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ABSTRACT

Objective: To describe the frequency of thrombocytopenia among young soldiers admitted with benign tertian malaria at CMH Pano Aqil.

Study Design: Descriptive study.

Place and Duration: CMH, Pano Aqil, from Sep-Nov 2008.

Patients and Method: All male patients (soldiers) admitted in medical ward with benign tertian malaria during study period were included in this study. Patients with other medical conditions causing thrombocytopenia e.g. chronic liver disease, chronic kidney disease, immune thrombocytopenia, bleeding diathesis, autoimmune and rheumatologic diseases were excluded from the study. All hematological parameters were estimated on automated analyzer at the time of admission. Samples with low platelets (< 150,000/L) were verified manually.

Results: Thrombocytopenia was seen in 105 (62.13%) patients out of 169 patients studied. All patients recovered their platelet count with treatment of malaria after five to seven days of hospital stay.

Conclusion: Thrombocytopenia is being observed in benign tertian malaria. Its presence in a febrile patient should raise the suspicion of malaria.

Keywords: Thrombocytopenia, Benign tertian malaria.

INTRODUCTION

Malaria has been recognized as a human disease for thousands of years and remains one of the most common diseases worldwide. It almost entirely affects developing countries, the worst affected being Africa. It is estimated that by 2010, over half the world's population will be exposed to the risk of contracting malaria[1].

Malaria has been there for centuries and still poses a serious health threat in tropical and sub-tropical countries. Malaria is endemic in 103 countries causing infection in over one million people per year. It kills around 1-3 million people annually. Frequent travel to endemic areas not only exposes travelers to risk of infection but can import the disease to currently malaria free areas[2].

Malaria has traditionally been classified into malignant tertian (MT), benign tertian (BT) and quartern malaria. Thrombocytopenia is a well-recognized complication of falciparum malaria. It is increasingly being recognized in Vivax infection also.

Objective

The study was carried out to find the frequency of thrombocytopenia in young soldiers admitted with BT malaria at CMH Pano Aqil.

PATIENTS AND METHODS

This descriptive study was carried out at CMH Pano Aqil from Sep to Nov 2008. All the male patients (soldiers) of any age group, reporting in medical OPD with history of fever were investigated for malarial parasite as an outdoor case. All the diagnosed cases of BT malaria were admitted and included in the study group through non probability convenience sampling. Patients with other medical conditions causing thrombocytopenia e.g. Chronic Liver disease, chronic kidney disease, immune thrombocytopenia, bleeding diathesis, autoimmune and rheumatologic diseases were excluded from the study. Blood complete picture and platelet counts were done on automated

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Received: 10 Nov 2009; Accepted: 04 March 2013

analyzers at the time of admission and in case of thrombocytopenia the platelet counts were verified manually.

Data has been analyzed using SPSS version 13. Descriptive statistics were used to describe the result.

RESULTS

A total number of 169 cases were included in this study. All (100%) were males with age range of 18 to 56 yrs and mean age of 24.7 yrs. Their platelet counts ranged from 42,000/l to 450,000/l.

Table-1: Percentage of thrombocytopenia in benign tertian malaria before and after treatment.

S. no	Platelet count/cmm	No of patients	Percentage (%)	Post treatment no of patients	Percentage (%)
1	Up to 50,000	2	1.18	-	-
2	51,000 – 100,000	35	20.71	-	-
3	101,000 – 150,000	68	40.23	-	-
4	151,000 – 200,000	38	22.48	74	70.47
5	200,000 – 250,000	20	11.83	21	20
6	250,000 – 350,000	4	2.36	10	9.52
7	350,000 – 450,000	2	1.18	-	-

Thrombocytopenia was seen in 105 (62.13%) cases. 68 (40.23%) patients had their platelet count between 100,000–150,000. 35 (20.71) patients had platelet count between 50,000–100,000, and 2 (1.18%) patients had their platelet count less than 50,000. With treatment of malaria, thrombocytopenia resolved spontaneously after five to seven days of admission in all the patients. Out of 105 patients with thrombocytopenia, 74 (70.47%) patients recovered their platelets count within the range of 150,000–200,000. 21 (20%) patients recovered their count in the range of 200,000–250,000 and 10 (9.52%) patients improved their platelet count in the range of 250,000–350,000.

DISCUSSION

Malaria occurs almost exclusively in the tropics and sub-tropics[2]. Approximately 40% of the world's population, mostly those living in the world's poorest countries, is at risk of malaria. Every year, more than 500 million people become severely ill with malaria. Most cases and deaths occur in sub-Saharan Africa[4].

Thrombocytopenia has long been observed in human and animal malaria infection[5-8]. It is seen in Falciparum as well as Vivax malaria[9-11]. The exact mechanism of thrombocytopenia in malaria is controversial. Several mechanisms have been suggested for thrombocytopenia, including disseminated intravascular coagulation, immune mechanisms due to absorption of soluble malaria antigen by platelets and subsequent attachment of antibodies to such antigens. Other factors suggested are defective platelet formation, hypersplenism and oxidative stress[8,12-16].

However, the exact mechanism has not been established[17]. The oxidative damage of platelets might be important in the pathogenesis of thrombocytopenia found in P. Vivax malaria[12]. It has been observed that after treatment of malaria, thrombopoietin levels normalize, and platelet counts increase rapidly. This indicates that the biosynthesis of thrombopoietin and its regulation in malaria patients is normal[18]. The degree of thrombocytopenia is variable among patients and may correlate with the severity of illness[8]. In our study 62.13% of patients had thrombocytopenia. This figure matches closely with other studies reporting thrombocytopenia in 57%[9] and 48% cases[15]. Some studies have reported even higher rates like 80%[11]. Various other hematological abnormalities are also seen in malaria[19].

Mahmood et al[20] studied 145 patients of falciparum malaria. Out of these 109 (75.18%) had thrombocytopenia. It is a general consensus that thrombocytopenia is very common in malaria[1,21] and it is believed to be more common in falciparum malaria. However, P. Vivax can also give rise to thrombocytopenia[9,10,22] as was seen in our study. We found thrombocytopenia in more than half of our patients with BT malaria.

CONCLUSION

Thrombocytopenia is being observed with benign tertian malaria infection in our study. It disappears rapidly with the treatment of disease and in itself requires no treatment. Malaria should be considered in all febrile patients with low platelets.

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