A Clinical Study of the Association of Thrombocytopenia with Acute Febrile Illness

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ABSTRACT

Background: Thrombocytopenia accompanying acute febrile illnesses is a matter of concern because lack of prompt treatment could result in significant mortality. We in this study tried to evaluate the clinical profile of cases with acute fever and thrombocytopenia and determine the cause of fever with thrombocytopenia and the outcome of treatment of such patients in our hospital.

Methods: A total of n=50 successive cases of acute febrile illness with thrombocytopenia following inclusion and exclusion criteria were included in this study. Clinical signs such as rashes, signs of dehydration, petechiae, jaundice, lymphadenopathy, hepatomegaly, splenomegaly, anemia, abdominal tenderness, altered sensorium, were noted. Investigations included CBP, ESR, LFT, RFT, serum electrolytes, Chest X-ray, USG abdomen were done. Other investigations included Dengue serology, Malaria, Widal, IgM for leptospirosis, sputum for AFB.

Results: Out of n=50 patients with acute fever with thrombocytopenia, all of them had a definitive diagnosis with malaria (40%) as the commonest cause, followed by enteric fever (24%), viral fever (14%), septiciemia (6%), dengue (14%), and leptospirosis (2%). 50% of the patients had platelet count in the range of 50,000 – 1,00,000 and 30% had platelet counts above 100000-150000. 8% of cases had platelet counts below 25000 and 12% had platelet counts between 25000-50000 at the time of admission. 10% mortality was observed.

Conclusion: infections as the commonest cause of thrombocytopenia. Malaria, dengue enteric fever, leptospirosis, and other viral infections formed the major diseases in this group of population. The diagnosis of malaria was the common cause because of seasonal and regional variations. A definitive increase in platelet count was noted after the underlying cause was treated. Severe cases of septicemia with associated co-morbidities resulted in mortality.

KEYWORDS: Thrombocytopenia, acute febrile illness, fever, platelet count
and gram –ve septicemia, miliary tuberculosis, leptospirosis, typhoid, mycoplasma pneumonia, etc. [7,10] Septicemia resulting from both Gram-positive and Gram-negative bacteria is the commonest cause of thrombocytopenia. Therefore, we in the current study tried to analyze the causes of thrombocytopenia associated with acute febrile illnesses in patients presenting to our Hospital.

MATERIAL AND METHODS

This cross-sectional study was carried out in the Department of General Medicine, Prathima Institute of Medical Sciences, Naganoor, Karimnagar. Ethical clearance for the study was obtained from Institutional Ethical Committee. Written consent was taken from all the cases of the study.

Inclusion Criteria: 1. The patients of both sexes aged >14 years. 2. Patients admitted with fever and found to have thrombocytopenia (platelet count < 1,50,000) are included in the study.

Exclusion criteria: 1. Patients other than febrile thrombocytopenia are excluded from the study. 2. Patients on antiplatelet agents/drugs for the treatment. 3. Cases of thrombocytopenia with febrile illness

A total of n=50 successive cases of acute febrile illness with thrombocytopenia following inclusion and exclusion criteria were included in this study. A careful history was recorded; general physical examination and detailed examination of various systems were done. Symptoms related to fever such as headache, nausea, vomiting, abdominal pain, diarrhea, cough, anorexia, myalgia, gum bleeding, hematemesis, oliguria, hematuria, loss of weight, etc., were noted. Clinical signs such as rashes, signs of dehydration, petechiae, jaundice, lymphadenopathy, hepatomegaly, splenomegaly, anemia, abdominal tenderness, altered sensorium, were noted. Investigations included CBC, ESR, LFT, RFT, serum electrolytes, Chest X-ray, USG abdomen were done. Other investigations included Dengue serology, Malaria, Widal, IgM for leptospirosis, sputum for AFB, ELISA for HIV1. In some cases, blood culture or urine culture were ordered. Once the specific diagnosis is reached, patients will be treated specifically and symptomatically. If bleeding complications were present, then platelet transfusions were done. All the available data was uploaded to an MS Excel spreadsheet and analyzed by SPSS version 19 on windows format.

RESULT

A total number of 50 patients admitted to our hospital were studied. No age group was considered, but the study subjects were in the age group of 18-85 years. The mean age was 35.5 ± 5.0 years. Out of n=50 cases, n=29 was male and n=21 were females. The Mean duration of hospitalization varied between 3 days to 14 days. The average duration of hospitalization was 5 ± 1.5 days.

Out of 50 patients with acute fever with thrombocytopenia, all of them had definitive diagnosis with malaria (40%) as the commonest cause, followed by enteric fever (24%), viral fever (14%), septicemia (6%), dengue (14%), and leptospirosis (2%) depicted in Table 1.

<table>
<thead>
<tr>
<th>Disease category</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Malaria</td>
<td>20</td>
<td>40</td>
</tr>
<tr>
<td>Enteric fever</td>
<td>12</td>
<td>24</td>
</tr>
<tr>
<td>Septicemia</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Dengue</td>
<td>7</td>
<td>14</td>
</tr>
<tr>
<td>Leptospirosis</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Viral Fevers</td>
<td>7</td>
<td>14</td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
<td>100</td>
</tr>
</tbody>
</table>

Table 1: Incidence of various Causes of Fever with thrombocytopenia

<table>
<thead>
<tr>
<th>Type of malaria</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vivax malaria</td>
<td>11</td>
<td>55</td>
</tr>
<tr>
<td>Falciparum malaria</td>
<td>06</td>
<td>30</td>
</tr>
<tr>
<td>Mixed malaria</td>
<td>03</td>
<td>15</td>
</tr>
<tr>
<td>Total</td>
<td>20</td>
<td>100</td>
</tr>
</tbody>
</table>

Table 2: Types of Malaria associated with Thrombocytopenia

In our study, 50% of the patients had platelet count in the range of 50, 000 – 1, 00, 000 and 30% had platelet counts above 100000-150000. 8% of cases had platelet counts below 25000 and 12% had platelet counts between 25000-50000 at the time of admission depicted in Figure 1.

Bleeding manifestations due to low platelet counts were found in n=15(30%) cases. Out of 15 cases, GI bleeding and malena was found in 5 cases, petechiae were found in...
3 cases, epistaxis in 2 cases, hematemesis in 3 cases, and bleeding gums in 2 cases (Figure 2).

**Bleeding manifestations**

![Bleeding manifestations](Image)

**Figure 2: Bleeding manifestations**

Out of n=50 cases, 45 had a good recovery and all these cases had near-normal platelet counts at the time of discharge. Out of 5 cases of mortality, 3 cases of septicemia and 2 cases of dengue fever were found.

**DISCUSSION**

In this study we found malaria (40%) as the commonest cause, followed by enteric fever (24%), viral fever (14%), septicemia (6%), dengue (14%), and leptospirosis (2%). These findings correlated with other studies done by our finding correlates with similar other studies.\(^{[11, 12]}\) In this study the second commonest cause of thrombocytopenia was dengue similar findings have been reported by Patil et al.,\(^{[13]}\), Lakum et al.;\(^{[14]}\), and Gandhi et al.;\(^{[15]}\). The present study also found that fever with thrombocytopenia occurs more frequently in males similar findings has been reported by other studies.\(^{[16, 17]}\) In this study, we found platelet counts below 50,000 in 20% of cases, Aman MN et al.;\(^{[18]}\) found severe thrombocytopenia in 18% of cases of their study in Maharashtra. In the current study, we found bleeding manifestations due to low platelet counts were found in n=15(30%) cases. Seema A et al.\(^{[19]}\) found only 8% patients had bleeding episodes while 26% patients had platelet count below 20,000/mm\(^3\) and 84% had <1lakh/cu mm. On the other hand, in a Delhi-based study by Tripathy BK et al.\(^{[20]}\) Hematemesis, melena and epistaxis were found in 28.28%, 26.78%, and 14.28% respectively but only 12.85% cases had platelet count < 70,000/cu mm. But in a Hyderabad-based study by Khan AH et al.\(^{[21]}\) only 5% of patients had bleeding while 40% had thrombocytopenia. The most common clinical sign detected was splenomegaly in 27% of cases followed by pallor and then hepatomegaly in 11% cases. Most of the patients 20% were from 17 to 30 years. The majority of patients had Hb less than <10gm%. 10% presented with Hb more than >10gm%. Clinical features of all patients suffered from fever, but no specific pattern could be identified degree was variable ranging from low to high grade. Abdominal pain was the next most common symptom followed by vomiting and 87% of patients complain of body aches and pains and 13% of patients had hemorrhagic manifestations in the form of gum bleed and melena. SJ Khan et al.\(^{[22]}\) study showed that thrombocytopenia often accompanies malaria and is usually mild to moderate. It may however be symptomatic and severe. 50% of patients with malaria showed thrombocytopenia in this study. Mahmood et al. 50 in their study found 145 cases of P. falciparum malaria out of which 75.18% with thrombocytopenia. In this study, recovery was in 90% of cases with an acceptable rise in platelet counts following treatment. Patil et al.\(^{[13]}\) reported 95% recovery and Aman NM et al.\(^{[18]}\) found 94% recovery. The common cause of mortality in this study was due to septicemia in n=3 cases and n=2 cases with dengue.

**CONCLUSION**

In conclusion present study of the association of thrombocytopenia with acute fever reveals that infection as the commonest cause of thrombocytopenia. Malaria, dengue enteric fever, leptospirosis, and other viral infections formed the major diseases in this group of population. The diagnosis of malaria was the common cause because of seasonal and regional variations. A definitive increase in platelet count was noted after the underlying cause was treated. Severe cases of septicemia with associated co morbidities resulted in mortality.

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