Paediatrics

Shravan Kanaparthi  
Senior resident, Department of Paediatrics, Kasturba Medical college, Manipal, Manipal University, India. - Correspondence Author

Prashant B Naik  
Associate Professor, Department of Paediatrics, Kasturba Medical college, Manipal, Manipal University, India

Pushpa G Kini  
Professor, Department of Paediatrics, Kasturba Medical college, Manipal, Manipal University, India

Shrikiran Aroor  
Professor and HOD, Department of Paediatrics, Kasturba Medical college, Manipal, Manipal University, India.

Nalini Bhaskaranand  
Professor, Department of Paediatrics, Kasturba Medical college, Manipal, Manipal University, India

Kalyan Chakravarthy Konda  
Senior resident, Department of Paediatrics, Kasturba Medical college, Manipal, Manipal University, India

ABSTRACT

Childhood immune thrombocytopenia (ITP) is an autoimmune bleeding disorder. Most children recover with initial treatment, but the individual course is hard to predict. The objectives were to study the clinical profile of children with Primary ITP and to identify factors that may predict poor response to initial treatment.

Methods: It is a retrospective & prospective study done in a tertiary hospital. 29 Acute ITP & 26 Persisting/Chronic ITP cases are studied.

Results: Acute ITP group was characterized by younger age of onset (p=0.003), duration of symptoms at presentation <2 weeks (p <0.001) and relatively high absolute lymphocyte count (p=0.019). Children in chronic ITP group had presented at older ages with low absolute lymphocyte count. However, the difference was statistically insignificant.

KEYWORDS:

Immune thrombocytopenia; Idiopathic thrombocytic purpura; ITP; Platelet disorders; lymphocyte number.

INTRODUCTION

Immune thrombocytic purpura (ITP), previously known as Idiopathic Thrombocytic purpura, is an immune-mediated acquired disease characterized by a transient or persistent decrease of the platelet count. Two-thirds of children with acute ITP recover within six months but, in some, the disease may persist for longer periods. Identification of the prognostic factors would help in predicting the course of disease and in alleviating the parental anxiety.

AIMS AND OBJECTIVES: To study the clinical and laboratory profile of children with Primary ITP and factors that may predict poor response to initial treatment.

MATERIALS AND METHODS

It is a retrospective & prospective observational study conducted in a tertiary hospital over 56 months. Cases were followed up for a minimum period of 3 months from diagnosis.

Inclusion criteria:

Children between 1 month to 18 years of age with clinical features suggestive of ITP and platelet count < 1,00,000/ cumm (in the absence of any other cause) with a follow-up for a minimum of 3 months after initial treatment were included in the study.

Exclusion Criteria: Children with thrombocytopenia due to other Auto-immune diseases (e.g. SLE), on Chemotherapy and who received treatment outside before presenting to Kasturba Hospital were excluded.

Definitions [1].

1. Primary ITP: Primary ITP is an autoimmune disorder characterized by isolated thrombocytopenia (peripheral blood platelet count <1,00,000/ cumm) in the absence of other causes or disorders that may be associated with thrombocytopenia

2. Newly diagnosed/Acute ITP: Children with thrombocytopenia with platelet count less than 1, 00,000/cumm for less than three months.

3. Persistent ITP: ITP lasting between 3 and 12 months from diagnosis.

4. Chronic ITP: Children with ITP in whom thrombocytopenia persists for more than 12 months.

Prior approval of Institutional ethics committee was obtained. Relevant clinical history was collected from the parents/guardians for prospective cases, and medical records were utilized for retrospective cases. Complete blood picture with peripheral smear at admission was done in all cases. Immunoglobulin levels at admission were analyzed only in prospective cases.

Data was analyzed using IBM SPSS (Statistical Package for Social Sciences) statistics 20 software. Numerical data were presented as a median and interquartile range. Independent sample t-test (Mann-Whitney test) and Chi-square test with Fisher's exact were used for data analysis of continuous and categorical variables respectively. A p-value < 0.05 was considered significant.

RESULTS

Figure 1 depicting the flow diagram of the study group. A total of 95 cases with primary ITP attended the Department of Paediatrics during the study duration, out of whom 23 received treatment outside initially and 17 were lost to follow-up, and hence were excluded. 55 cases were
included, 29 with Acute ITP and 26 with chronic/persisting ITP. Out of the 55 cases, 32 were analyzed retrospectively, and 23 were analyzed prospectively.

Figure 1, Flow diagram of study cohort.

Baseline parameters of the study group are shown in Table 1. In the present study female: male ratio was 1.2. Acute ITP was more commonly seen in younger children whereas chronic ITP was more common in older children with a statistically significant p-value.

Table 1. Summary of baseline parameters in children with ITP.

<table>
<thead>
<tr>
<th>Observation</th>
<th>Acute ITP (n=29)</th>
<th>Chronic &amp; Persisting ITP (n=26)</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td>Male (n=25) 15(51.7%)</td>
<td>Female (n=30) 14(48.3%)</td>
<td>0.324 (NS)</td>
</tr>
<tr>
<td>Age (y.)</td>
<td>1month-3 13</td>
<td>3-6 6</td>
<td>0.003 (S)</td>
</tr>
<tr>
<td></td>
<td>6-9 5</td>
<td>9-12 4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>12-15 1</td>
<td>15-18 0</td>
<td></td>
</tr>
<tr>
<td>Seasonal variation</td>
<td>Dec-March 11</td>
<td>April-July 7</td>
<td>0.035 (S)</td>
</tr>
<tr>
<td></td>
<td>Aug-Nov 11</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Symptomatology*</td>
<td>Skin bleed 26</td>
<td>ENT &amp; mucosal bleed 11</td>
<td>0.019 (S)</td>
</tr>
<tr>
<td></td>
<td>CNS bleed 1</td>
<td>Menorrhagia 4</td>
<td></td>
</tr>
<tr>
<td>Duration of onset of symptoms at diagnosis</td>
<td>&lt;2weeks 26</td>
<td>&gt;2 weeks 2</td>
<td>&lt;0.001 (S)</td>
</tr>
<tr>
<td></td>
<td>Asymptomatic 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>H/o fever (within 4 weeks of onset of symptoms)</td>
<td>Yes 11</td>
<td>No 18</td>
<td>0.577 (NS)</td>
</tr>
<tr>
<td>Platelet count/ cumm. (median/IQ 75th,25th)</td>
<td>5000 (11000, 40000)</td>
<td>10000 (23500,40000)</td>
<td>0.18 (NS)</td>
</tr>
<tr>
<td>Total leucocyte count/ cumm. (median/IQ 75th,25th)</td>
<td>12300 (16100,8500)</td>
<td>9200 (12925,7950)</td>
<td>0.085 (NS)</td>
</tr>
</tbody>
</table>

Discussion:
Immune thrombocytopenia, with a backdrop of autoimmunity as pathogenesis, was more common in females in chronic/persisting ITP group (p=0.324) and was in line with other studies [2,3]. Similarly, the chance of progressing to a chronic disease was higher in older age group children. Younger age of onset predicted a favorable response to initial treatment (p-value:0.003), with similar results in other studies [3-6,9].

The seasonal variation observed between the two groups could be explained by the fact that most of the children in monsoon would have had a preceding viral illness followed by immune thrombocytopenia, which most of the times shows a good response to the initial treatment. Zeller et al. [6] reported similar results, but Bolton et al. [7] found no seasonal variation.

Skin bleeding manifestations followed by mucosal bleed were the most common manifestations. Severe bleeding manifestations are rare in children with ITP in spite of very low platelet counts. One child in the study group had intracranial bleed and manifested as seizures. In Glanz et al., mucosal bleeds were more commonly associated with chronic ITP [4].

Insidious onset of symptoms (>2weeks) was associated with chronicity with a significant p-value (p<0.001) and was in line with other studies [2,6,8].

No significant difference between median platelet counts and total leucocyte count was observed in the present study. Higher platelet counts (>20000/cumm) at presentation were found to be a predictor of chronicity in other studies [2,4]. Higher absolute lymphocyte count (p=0.019) with an Area Under Curve of 0.648± 0.073 at presentation is observed in children with acute ITP group. Similar results were observed in other studies [2-4,9].

In the present study, immunoglobulin levels were estimated in the prospectively studied cases at initial presentation which did not receive any form of treatment outside to remove the possible bias. Median IgG & IgG levels were higher and median IgA levels lower in children with acute ITP compared to chronic ITP, however, the difference was not statistically significant. In a study by Masaru et al., elevated levels of
IgA, IgG, and IgM were seen in children with acute ITP [11]. A study by Arnason et al. showed elevated IgA and low IgM levels was associated with a significantly increased chance of failing to respond to initial treatment [11].

Steroids were the predominant 1st line medication used followed by IVIg in both groups. One child with chronic ITP in the study group expired. He presented with altered sensorium and mucosal bleed. Poor drug compliance was reported.

**Conclusion**

Identifying factors that help in assessing the prognosis of children with Immune Thrombocytopenia would assist clinicians in educating parents about the specific information and likely course of the disease and helps in alleviating their anxiety. Younger age at onset, acute onset of symptoms (<2 weeks), presentation during August-November, higher absolute lymphocyte count at presentation were associated with a good prognosis.

Limitations: A well-structured prospective randomized trial with a larger sample size would facilitate identification of risk factors and assess the efficacy of various available medications.

No conflict of interest. No source of funding.

**Acknowledgement:** None

**REFERENCES:**