Original Article

Clinical profile of idiopathic thrombocytopenic purpura in children

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Abstract

Background: Platelets play a vital role in hemostasis. Idiopathic / Immune thrombocytopenic purpura (ITP) is the common bleeding disorder in children, where autoantibodies mediated consumption of the platelets leading to bleeding manifestations. History of a preceding viral infection 1-6 week before the onset of thrombocytopenia is present in 60% of cases. There is highest male to female ratio in younger age groups and this ratio decreases with older age group children. Immunizations as possible preceding factors of ITP through molecular mimicry. International working group is given severity of bleeding in ITP based on bleeding manifestations, mode of treatment and quality of life but not on the platelet count. **Objectives:** This is a retrospective and prospective study to know the clinical profile of idiopathic thrombocytopenic purpura in the form of age and sex difference in clinical presentation, association with proceeding upper respiratory tract infection and vaccination. Also different clinical manifestations of bleeding and platelet counts at admission to classify the severity of disease. **Materials and Methods:** This is a retrospective prospective study, comprised of children in the age group of 1 month to 15 years admitted and diagnosed as ITP from 1995 to 2014. Data was collected from medical records of these patients about clinical symptoms of bleeding, prior vaccination and any upper respiratory infection and first platelet counts after admission. Statistical analysis was done to know variation in age and sex group and clinical presentation in the form of bleeding severity and platelet counts. **Results:** In our study male child predominance was seen below 5yrs of age (male n=11, female n= 2) and after 5yrs females were more (male n= 6, female n=7). No correlation was found between vaccination and onset of ITP. 11.5 % of cases had viral infection prior to disease onset. 95 percent of children had only mild disease (i.e. petechie, purpura), moderate cases were remaining 5percent and none had severe bleeding manifestations. Platelets at admission were <10000/L in 46.2% and 10000-50000/L in 38.5 % cases were severe and moderate disease each. **Conclusion:** ITP is most common bleeding disorder of plateletsin children, which clinically behaves benign with severe thrombocytopenia. Association of vaccination and prior upper respiratory infection more common in infants.

Keywords: Platelet counts, upper respiratory tract infection, vaccination.

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INTRODUCTION

Platelets play a vital role in hemostasis. Idiopathic / Immune thrombocytopenicpurpura (ITP) is a common bleeding disorder in children, where autoantibodies mediated consumption of the platelets, suppression of platelet production by bone marrow megakaryocytes leads to thrombocytopenia and bleeding manifestations.[1,2] Incidence is 6.4 per 10000 among children and 3.3 per 10000 adults per year.[1] There is highest male to female ratio in infancy and it decreases with older age group children. No significant seasonal variation. Vaccination may play an important role in the etiology of ITP in infants. History of a preceding viral infection 1-6 weeks before the onset disease is present in 60% of cases. Bone

narrow was routinely performed but evidences confirmed that its rarely needed at presentation, must be considered if having severe bleeding or not responding to treatment[3]. ITP is a diagnosis of exclusion[4,5] The combination of history, clinical examination and investigations are essential. Various treatment modalities include corticosteroids, IV Immunoglobulins, Dexamethasone, Rituximab and immunosuppressive agents.[1] It's a common bleeding disorder in children with available treatment and good prognosis. Various studies has been done over period of time. Different studies have shown age and sex variations, Often a preceding viral infection or vaccination has been found. Children presents with various bleeding manifestations. Here we assessing the same natural history of disease still exsting to identify, prevent and treat it with this study.

AIMS AND OBJECTIVES

- To study the clinical presentation among different age and sex groups.
- Association of prior vaccination and infection.
- To classify the severity of disease with bleeding manifestations and platelet counts.

MATERIALS AND METHODOLOGY

A retrospective and prospective descriptive study of children who were diagnosed as immune thrombocytopenic purpura from 1995-2014. The prospective study was done from October 2013- October 2014 by collecting data from medical registry of inpatient department father muller hospital mangalore. Institutional Ethical clearance was obtained. All children between 1month to 15 years, both males and females were included in the study. Cases are classified as mild, moderate and severe disease based on bleeding manifestations and platelet counts at admission like other studies[3,4,5,8]. All the cases were analysed for association of previous upper respiratory tract infection, vaccination, various presentation of bleeding manifestations and platelet counts at admission.

STATISTICAL ANALYSIS

- Chi squre test
- Analysis of variance(ANOVA)

OBSERVATIONS

Table 1: Bleeding manifestations

	A		p		Total	
	Freq	%	freq	%	freq	%
Petechie	2	7.7%	24	92.3%	26	100.0%
Purpura	25	96.2%	1	3.8%	26	100.0%
Epistaxis	25	96.2%	1	3.8%	26	100.0%
Bruise/	22	84.6%	4	15.4%	26	100.0%
Malena/ hametemesis	25	96.2%	1	3.8%	26	100.0%
Other	**20**	**76.9%**	**6**	**23.1%**	**26**	**100.0%**

Table 2: Age and sex distribution

	Frequency	Female	Male	Percent
<1YRS	1	0	1	3.8
2-5YRS	12	2	10	46.1
6-15YRS	13	7	6	50
Total	**26**	**9**	**17**	**100**

Table 3: URTI/flue like prior to disease onset

	Frequency	Percent
yes	3	11.5
no	23	88.5
Total	**26**	**100.0**

Table 4: Platelet count at admission and severity

	Frequency	Percent	Severity of disease
< 10000	12	46.2	Severe
10000 - 50000	10	38.5	Moderate

Above 50000	4	15.4	Mild
Total	**26**	**100.0**	

RESULTS

The results of our study are similar to previous studies and co relating with the natural history of disease. Male child predominance was seen below 5yrs of age (male n=11, female n= 2) and after 5yrs females were more (male n= 6, female n=7). No correlation was found between vaccination and onset of ITP. 11.5 % of cases had viral infection prior to disease onset. Among the clinical manifestations 92.3% petechiae, one child had purpura (3.8%), one epistaxis (3.8%), one bleeding from gums (3.8%), one with malena (3.8%), one with subcounjunctival hemorrhage (3.8%), and one child with hematoma (3.8%). 95 percent of children had only mild disease (iepetechie, purpura), moderate cases were remaining 5percent and none had severe bleeding manifestations. Platelets at admission were <10000/L in 46.2% and 10000-50000/L in 38.5 % cases were severe and moderate disease each. Even though maximum cases had very low platelet count but clinically had mild disease. Our cases were not documented with number of bleeding spots so this way of disease severity assessment was lacking.

DISCUSSION

John D Grainger, L Rees et al study showed that, the majority of children were between 2 and 5 years of age with predominance of boys up to 5 years(n=138, males 89 (64%), females 49, ratio 1.8:1)and a predominance of girls (n=87, males 39, females 48 (55%), ratio 0.8:1) over 5 years. Nineteen (8%) children were under 12 months at the time of presentation.[3,5]Another study done by H B Bolton-Maggs showed equal sex incidence in 2-5years, without seasonal variation.[4] In Iran a study done by Ramyar and Kalantri for 0-24months aged children, showed there is male predominance with a median age of 3 months [5.] There is much similarity in our study with male predominance below 5yrs of age (male n=11, female n= 2) and after 5yrs female are more. (Male n= 6, female n=7). John D Grainger, Joanne L Rees et al study shown that, Bruising (87.4%) and petechiae (73.9%) were the most common bleeding manifestations. Followed by severe bleeding in the form of epistaxis (26.6%) and oral bleeding (24.6%), bleeding from the gastrointestinal tract (8.5%), one had an ICH and one had menorrhagia [3.] In another study done by H B Bolton-Maggs et al, only 9 percent had bleeding, among that 5percent mild, 20percent moderate and 38percent severe cases.[4] In Ramyar and Kalantari study most common presenting symptoms were purpura, petechial rash and/ or ecchymoses (80 patients). 16.6 percent presented with active mucosal bleeding.[5] Like other studies most of the bleeding manifestations suggesting mild verity predominant presentation was petechial rashes. In our study 92.3% petechiae (3.8%), one child had purpura (3.8%), one epistaxis (3.8%), one bleeding gums (3.8%), one with malena (3.8%), one with subcounjunctival hemorrhage (3.8%), and one child with hematoma (3.8%). In the study John D Grainger et al, 7 percent of children presented in the 6 weeks following a routine childhood immunization And within the 6 weeks preceding presentation, 47% had a suspected viral infection.[3] In H B Bolton-Maggs et al study 57percent of children had previous suspected viral infection or immunization.[4] In Ramyar and Kalantari study Nine (9.3%) infants had received vaccinations in the preceding 6 weeks and 48percent had upper respiratory tract infection 2-4wks prior to presentation[5,7]. In corri black et al study, among 52 children (13-24months) who developed ITP at some time after having MMR vaccination, only three had recurrences of ITP. 50percent developed ITP within 6wks and remaining between 7-28days after vaccination. The study concluded there is increased risk of ITP within 6wks after MMR vaccination but attributable risk is low [6]. Unlike other studies no correlation was found between vaccination and onset of ITP. In our study 11.5% of cases had viral infection prior to disease onset. 2007 study by John D Grainger et al classified disease mild, moderate and severe based on number of bleeding sites, bleeding manifestations and platelet cut off values. 54%of children had mild, 42% had moderate and 4% had severe disease.[3] Children with mild, moderate and severe diseases had bleeding sites 1.9, 2.5 and 3.6). Mean platelet count were 13×10 9 /l, 8×10 9 /l and 6×10 9 /l, respectively[3]. H B Bolton-Maggs et al study, 83percent of children with platelet count <20×109/l.[4,7] In Ramyar and Kalantari study, median platelet count 13000.[5] In our study 95% of children had only mild disease (petechie, purpura), moderate cases are remaining 5%and none had severe bleeding manifestations. Platelet counts were <10,000 46.2 %(severe), <1Lakh in 38.5% (moderate), >1lakh in 15.4% (mild) children. Even though maximum cases presented with very low platelet count but they had clinically milder bleeding manifestations. A future data analysis will assess whether or not the number of bleeding sites could be used as a simple guide to aid treatment decisions as done in 2007 UK study[3]. Our cases were not documented with number of bleeding spots so this way of disease severity assessment was lacking and need to incult in clinical day today practice.

CONCLUSION

ITP is most common bleeding disorder of platelet dysfunction. Most cases presents as benign way with severe thrombocytopenia. Association of vaccination and prior flue like illness more common among infants. Based on number of bleeding points disease severity assessment is important which was lacking in our study need to be used in day today's practice.

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