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Idiopathic thrombocytopenic purpura in childhood: a population-based study in Qatar

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Abstract

Objective: To find the pattern of idiopathic thrombocytopenic purpura (ITP) (acute/chronic) and to describe presenting features and clinical characteristics of the disease in children below 14 years of age in a newly developed Arabian society.

Method: This retrospective, descriptive study was carried out at the Pediatric Department of the Hamad General Hospital, Hamad Medical Corporation, Qatar. A total of 50 children below 14 years of age who were diagnosed with ITP during the period 2000-2005 were included.

Results: Among the studied children (50), 62% were diagnosed with acute ITP and 38% with chronic ITP. Acute ITP was more prevalent in boys (64.5%) when compared with girls (35.5%), whereas for chronic ITP, nearly an equal distribution was found in boys (57.9%) and girls (42.1%). Preceding viral infection was common in both acute (71%) and chronic (63.2%) ITP cases; 68% of the children with ITP showed a platelet count below 20×10^9/L at the time of presentation. Most of the studied children were treated with intravenous immunoglobulin (74%).

Conclusions: The study revealed a high incidence of ITP among children in Qatar. The study findings are in line with other international reports.

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Introduction

Idiopathic thrombocytopenic purpura (ITP) in children is usually a self-limiting disorder presenting most commonly with a short history of purpura and bruising in children of both sexes between 2 and 10 years of age.[1] ITP may be either acute or chronic. The acute form is more common in children aged 2 to 6 years, and between 10 and 20% of children with ITP evolve to the chronic form. ITP does not appear to be related to race, lifestyle, climate or environmental factors.[2]

In children, primary acute ITP is idiopathic in nature and typically occurs in young, previously healthy children following an infectious illness.[3] The onset of ITP can take place at any age, and the disorder affects the overall number of blood platelets rather than their function. So far, no study has been conducted on this topic in Qatar. Therefore, the aim of this study was to find the pattern of ITP (acute/chronic) and to describe presenting features and clinical characteristics in children below 14 years of age in Qatar.

Methods

This retrospective, descriptive study was conducted from 2000 to 2005 in the pediatric wards and outpatient clinics of the Hamad General Hospital (HGH), Hamad Medical

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Corporation, Qatar. The target population comprised all children below 14 years of age who were diagnosed with ITP (ICD-10 – D-69.3) and treated at HGH, which is the main pediatric, academic medical institution in Qatar, which handles all cases of pediatric tertiary care. The fact that the Medical Records Department at HGH handles records of both inpatients and outpatients served as a guarantee that all patients with ITP were included in the study sample. A especially designed questionnaire was used to collect sociodemographic and clinical data of the studied children based on their medical records. Information on the drugs prescribed to the patients and treatment outcome was collected from the physicians' log book.

The diagnosis of ITP was determined based on history and physical examination; a complete blood count revealing isolated thrombocytopenia (platelet count < 150×10^9/L), normal hemoglobin concentration, white blood cell count and peripheral blood smear, and absence of underlying conditions and malignancy cases were also considered as inclusion criteria. Bone marrow aspiration was performed in children presenting with typical features of acute ITP, mainly to rule out other causes of thrombocytopenia. Chronic ITP was arbitrarily defined as persistent thrombocytopenia for more than 6 months following initial diagnosis.

The study was approved by the Research Ethics Committee at HGH. All investigations were performed in accordance with the ethical standards laid down in the 1964 Declaration of Helsinki.

Results

Table 1 shows the sociodemographic characteristics of the sample. Among the children assessed (50), 62% were diagnosed with acute ITP and 38% with chronic ITP. Acute ITP was more prevalent in boys (64.5%) compared to girls (35.5%); for chronic ITP, nearly an equal distribution was found in boys (57.9%) and girls (42.1%). In the comparison of age groups, the highest number of children with ITP was in the 1-4-year group (60%), followed by children in the 5-9-year group (22%).

Table 2 presents the clinical and pathological characteristics of the children studied. Sudden onset of the disease was more associated with acute ITP (83.9%) than with chronic ITP (52.6%). The most common clinical features for acute and chronic ITP were petechia (83.9

Table 1 - Sociodemographic characteristics of children with ITP (n = 50)

	ITP		
Variables	**Acute (31) n (%)**	**Chronic (19) n (%)**	**P**
Age in years, mean (SE)	4.01 (0.60)	3.52 (0.72)	
Age group			0.986
< 1 year	4 (12.9)	2 (10.5)	
1-4 years	18 (58.1)	12 (63.2)	
5-9 years	7 (22.6)	4 (21.1)	
10-14 years	2 (6.5)	1 (5.3)	
Sex			0.640
Male	20 (64.5)	11 (57.9)	
Female	11 (35.5)	8 (42.1)	
Nationality			0.464
Qatari	18 (58.1)	13 (68.4)	
Non Qatari	13 (41.9)	6 (31.6)	
Season			0.884
Winter	8 (25.8)	6 (31.6)	
Spring	6 (19.4)	3 (15.8)	
Summer	8 (25.8)	6 (31.6)	
Fall	9 (29.0)	4 (21.1)	
Family history of ITP			0.564
Yes	6 (19.4)	5 (26.3)	
No		25 (80.6)	14 (73.7)

ITP = idiopathic thrombocytopenic purpura; SE = standard error.

and 89.5%), bruising (67.7 and 63.2%), and bleeding (38.7 and 47.4%, respectively). Preceding viral infection was common in both acute and chronic ITP (71.0 and 63.2%); 68% of the children showed a platelet count below 20×10^9/L at presentation, and 22% suffered from nasal bleeding. Intravenous immunoglobulin was the treatment most commonly used in children with acute and chronic ITP (74%).

Table 2 - Clinical and pathological characteristics of children with idiopathic thrombocytopenic purpura (n = 50)

Variables	Idiopathic thrombocytopenic purpura		P
	Acute (31) n (%)	Chronic (19) n (%)	
Onset			0.017
Abrupt < 1 week	26 (83.9)	10 (52.6)	
Gradual > 1 month	5 (16.1)	9 (47.4)	
Clinical features			
Petechia	26 (83.9)	17 (89.5)	0.579
Bruising	21 (67.7)	12 (63.2)	0.740
Bleeding	12 (38.7)	9 (47.4)	0.547
Viral infection	22 (71.0)	12 (63.2)	
Lymphadenopathy	5 (16.1)	0 (0)	0.065
Splenomegaly	1 (3.2)	2 (10.5)	–
Hepatomegaly	1 (3.2)	2 (10.5)	–
Platelet count			0.0326
$< 10\times10^9$/L	9 (29.0)	7 (36.8)	
$10\text{-}19\times10^9$/L	14 (45.2)	4 (21.1)	
$20\text{-}49\times10^9$/L	8 (25.8)	4 (21.1)	
$50\text{-}100\times10^9$/L	0 (0)	4 (21.1)	
Site of bleeding			–
Nasal	9 (29.0)	2 (10.5)	
Bloody stools	1 (3.2)	2 (10.2)	
Gingival	0 (0)	2 (10.2)	
Gastrointestinal tract	1 (3.2)	0 (0)	
Gastrourinary tract	0 (0)	1 (5.3)	
Nasal and gingival	0 (0)	1 (5.3)	
Right finger post trauma	0 (0)	1 (5.3)	
No bleeding	20 (64.5)	10 (52.6)	
Hemoglobin			0.660
Normal	26 (83.8)	15 (78.9)	
Abnormal	5 (16.2)	4 (21.1)	
White blood cells			0.028
Normal	27 (87.1)	14 (73.7)	
Abnormal	4 (9.7)	5 (15.8)	
Peripheral blood smear			0.233
Normal	11 (35.5)	10 (52.6)	
Not done	20 (64.5)	9 (47.4)	
Mean platelet volume			–
Normal	1 (3.2)	1 (5.3)	
Abnormal	25 (80.6)	15 (78.9)	
Not done	5 (16.1)	3 (15.8)	
PT and APTT			0.457
Normal	14 (45.2)	10 (52.6)	
Abnormal	17 (54.8)	9 (47.4)	
Treatment			0.146
IVIG	19 (61.3)	18 (94.7)	
Steroid + IVIG	4 (12.9)	5 (26.3)	
Observation alone	4 (12.9)	0 (0)	

APTT = activated partial thromboplastin time; IVIG = intravenous immunoglobulin; PT = prothrombin time.

Discussion

ITP is a common pediatric hematologic disorder. The estimated incidence is 2-8 per 100,000 people.[4] In this retrospective study, 50 children with ITP were assessed in a period of 6 years, and a similar annual incidence was observed in 2005, namely, 7.2/100,000.

Among the children assessed (50), 31 (62%) presented acute ITP and 19 chronic ITP (38%). The rate of chronic ITP (38%) found in Qatar was higher than the rate expected for children below 15 years of age (15 to 20%[5]). On the other hand, our results were in accordance with the ones observed in Kuwait, where acute cases were twice as common as chronic cases, and also with other reports.[6]

Most children with acute ITP were in the 1-4 year age group (60%). This is comparable with the results reported by Ahn & Horstman,[7] who observed a higher incidence of the disease in children aged 2 to 4 years. Among the children diagnosed with acute ITP, the disease was more prevalent in boys (64.5%) when compared with girls (35.5%). In Qatar, no significant seasonal occurrence was observed. Even in Kuwait,[8] no association was observed between incidence and season. In contrast with these reports, another study[9] documented that ITP was found mainly in winter and spring.

Familial predisposition has been reported for cases of ITP, suggesting a genetic susceptibility.[10] However, this aspect was not observed in the clinical experience of Qatar.

Preceding viral infection was common in both acute and chronic ITP cases (71 and 63.2%). The high annual incidence of ITP was probably related to the viral infections children had had during the study period. In addition, 68% of the studied children showed a platelet count below 20×10^9/L at the time of presentation.

ITP treatment differs worldwide in terms of when to initiate the therapy, what treatment to use and whether hospitalization is needed.[11] The treatment strategies currently available for acute ITP include observation alone, intravenous immunoglobulin, anti-Rh (D) immunoglobulin, and lastly, steroids.[12] Most of the children included in our study were treated with intravenous immunoglobulin (74%).

Conclusion

The study revealed a high incidence of ITP among children in Qatar. No statistical difference was observed in the incidence of ITP in boys and girls. This study also highlights the situation of ITP in children in Qatar and may help establish national guidelines for the investigation and management of childhood ITP.

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