

Clinical Variables among Adult Patients with Chronic Idiopathic Thrombocytopenic Purpura in West Iran

Payandeh M¹, Fekri A², Sadeghi M^{2,3*}, Sadeghi E^{2,3}

1. Department of Hematology and Medical Oncology, Kermanshah University of Medical Sciences, Kermanshah, Iran.

2. Students Research Committee, Kermanshah University of Medical Sciences, Kermanshah, Iran.

3. Medical Biology Research Center, Kermanshah University of Medical Sciences, Kermanshah, Iran.

***Corresponding Author:** Sadeghi M, **Email:** sadeghi_mbrc@yahoo.com

Submitted: 01-07-2014, Accepted: 12-10-2014

Abstract

Background: There are two forms of ITP: acute and chronic. The chronic form is defined by persistent thrombocytopenia for more than 12 months and mostly occurs among young women.

The aim of the present study was to evaluate the clinical variables in adult patients with chronic ITP in West Iran.

Patients and Methods: Between of 2007 and 2014, ninety adult patients with chronic ITP referred to our clinic in Kermanshah, West Iran, entered the study. We surveyed age, sex, platelet count, hemoglobin and WBC among patients. All patients were also screened for H pylori infection using H pylori urea breath test (UBT) and serum H pylori antibody.

Results: The mean age of patients was 36.7 years (± 14.2). Twenty patients (22.2%) were male and 70 patients (77.8%) were female. H pylori infection was found in 25 patients (27.8%). More patients were in the 14-30 years age bracket for both male and female patients, and with increasing age the number of patients was gradually reduced. There was a statistically significant correlation between H pylori infection and mean Hb, with patients having the infection showing higher Hb.

Conclusions: In the present study the peak incidence of chronic ITP was seen among young adults. The prevalence of H pylori infection among patients with chronic ITP in our study was in line with the prevalence reported from North America and France.

Keywords: Chronic ITP, H pylori, Hb, WBC, Iran.

Introduction

Idiopathic thrombocytopenic purpura (ITP) is characterized by immune-mediated platelet destruction by the reticuloendothelial system. It is classified based on duration (acute or chronic) and age (peak incidence in young childhood and adulthood), but it affects all age groups^{1,2}. The acute form is frequently seen among children, but the chronic form mainly inflicts adults. There are differences and similarities in clinical and laboratory findings of the disease between children and adults³. The estimated incidence of pediatric ITP is 5/100,000 with approximately one third of cases becoming chronic in children and a greater incidence of chronic disease in adolescence and adulthood^{2,4-6}. Helicobacter pylori (H. pylori) is a spiral shaped microaerophilic gram-negative bacterium, first

isolated from gastric biopsy by Robin Warren and Barry J. Marshall in 1984. Some studies have shown an increased prevalence of H pylori infection among patients with chronic ITP compared to the general population and also the prevalence of H pylori infection in chronic ITP patients varies according to the geographic region⁷. The aim of the present study was to evaluate the clinical variables among adult patients with chronic ITP in Kermanshah, West Iran.

Patients and Methods

Patients

Between 2007 and 2014, ninety adult patients with chronic ITP (all patients had baseline platelet count $\leq 50 \times 10^3/\mu\text{L}$), referred to our clinic,

Kermanshah city, West Iran, were included in the study. We surveyed age, sex, platelet count, hemoglobin (Hb) and WBC count among patients. All patients were also screened for H pylori infection using H pylori urea breath test (UBT) and serum H pylori antibody. The study was approved by the regional ethics committee and written consent was given by all participants.

Statistics

Correlation between all variables was checked using SPSS software version 19 (SPSS Inc., Chicago, Illinois). T-test was used to study the relation between age, HB, platelet and WBC with sex, and Chi-Square test was utilized to study the relation between H pylori infection and sex. P values less than 0.05 were considered statistically significant.

Results

The mean age for the patients was 36.7 years

(± 14.2). Twenty patients (22.2%) were male and 70 patients (77.8%) were female. H pylori infection was found in 25 patients (27.8%) (Table 1).

Figure 1 shows the distribution of patients based on their age and sex. We divided the patients based on age to 5 groups: 14-30, 31-40, 41-50, 51-60 and 61-70 years old.

More patients were in the 14-30 years age bracket for both male and female patients, and with increasing age the number of patients was gradually reduced.

Table 2 shows some variables (platelet count, Hb and WBC) among our patients when the ITP was first diagnosed.

Table 3 shows the correlation between variables (platelet count, Hb and WBC, H pylori infection) with sex. There was a significant correlation between Hb and sex ($p=0.004$), indicating that that the mean Hb among males was higher than females which was predictable. No other significant

Table 1: The basic characteristics of patients with chronic ITP entering the study.

Variables	n(%)	Mean \pm SD	Range
Age(year)		36.7 \pm 14.2	14-69
Sex			
Male	20(22.2)		
Female	70(77.8)		
H pylori Infection			
Positive	25(27.8)		
Negative	65(72.2)		

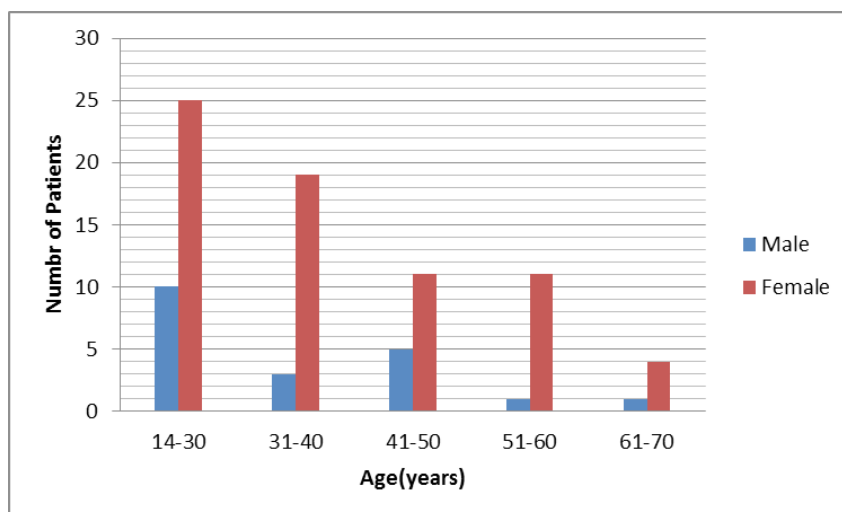


Figure 1: Distribution of patients with chronic ITP based on age and sex (n=90).

Table 2: Platelet count, Hb and WBC when the ITP was first diagnosed among patients.

Experimental Variables	Mean	Range
Platelet count($\times 10^3/\mu\text{L}$)	30	1-50
Hemoglobin(g/dL)	13.2	9.6-17.5
White Blood Cell ($\times 10^3/\mu\text{L}$)	9	3.9-20.5

Table 3: Variables including platelet count, Hb and WBC and *H pylori* infection among chronic ITP patients and their relation with sex.

Variables	Sex(mean \pm SD)		P-value
	Male	Female	
Age (year)	35.3 \pm 12.8	37.1 \pm 14.6	P=0.6*
Hemoglobin (g/dL)	14.1 \pm 1.5	12.9 \pm 1.4	P=0.004*
White Blood Cell ($\times 10^3/\mu\text{L}$)	9.1 \pm 2	8.9 \pm 3.3	P=0.39*
Platelet ($\times 10^3/\mu\text{L}$)	35 \pm 13	28 \pm 14	P=0.6*
H pylori Infection, n (%)			
Positive	8(40)	17(24.3)	P=0.13**
Negative	12(60)	53(75.7)	

* T-test

**Chi-Square Test (Fisher's Exact Test)

Table 4: Variables including platelet count, Hb and WBC and age among chronic ITP patients and their relation with *H pylori* infection.

Variables	<i>H pylori</i> Infection(mean \pm SD)		P-value
	+	-	
Age (year)	35.6 \pm 14.6	37.1 \pm 14.1	P=0.63*
Hemoglobin (g/dL)	14.1 \pm 1.4	12.8 \pm 1.4	P<0.005*
WBC ($\times 10^3/\mu\text{L}$)	9.3 \pm 3	8.8 \pm 3	P=0.37*
Platelet($\times 10^3/\mu\text{L}$)	29 \pm 15	30 \pm 13	P=0.68*

* T-test

correlation was found.

Table 4 shows some variables among chronic ITP patients and their relationship with the presence of *H pylori* infection. There was a statistically significant correlation between *H pylori* infection and the mean Hb, with infected patients showing higher Hb (P<0.005).

Discussion

ITP is an autoimmune blood disorder in which platelet destruction is mediated by anti-platelet

antibodies. There are two forms of ITP: acute and chronic. The chronic form is defined by persistent thrombocytopenia for more than 12 months and mostly occurs among young women 3. Nearly 20% of children and the majority of adults have chronic ITP, which usually requires some forms of therapy 8. In the recurrent form the drop in platelet count appears again after a period of normality 9.

Many studies have shown an association between *H pylori* infection and ITP 10. *H pylori*, a gram-negative spiral bacterium, is the causative

agent in chronic gastritis, gastric and duodenal ulcer, as well as gastric cancer. *H. pylori* has also been implicated in the pathogenesis of extradigestive disorders, including cardiovascular, hematologic, and autoimmune diseases¹¹. Also strong evidence has been reported showing its relation with ITP, with high-quality studies indicating that ITP improves after *H. pylori* is successfully eradicated. The prevalence of *H. pylori* infection in adult ITP patients has been systematically reviewed and has not been found to be different from that reported in the general population matched for age and geographical area¹². Most studies have been conducted in Italy, where the *H. pylori* rate in the middle-aged adult general population is nearly 50%, or Japan, where the prevalence of the infection is greater than 70%. A prevalence of (22%) for *H. pylori* infection has been reported in North American patients with chronic ITP¹³. This prevalence has been (29%) in adult ITP patients of white French origin¹³. A very high prevalence of *H. pylori* infection in adult patients with ITP from Colombia has been reported (90.6%)¹³. In our study, 27.8% of patients with chronic ITP had *H. pylori* infection which is comparable to results from North America and France.

A previous study in Iran showed that out of 129 enrolled patients with a mean age of 29.2 ± 7.0 years (range, 18-46 years), 66 patients (51.2%) were females¹⁴. Elezović et al.¹⁵, reported that in 167 patients with chronic ITP 136 were females (81.4%), and the median age was 35 years (range, 17-74 years). In our study on 90 patients with chronic ITP, the mean age was 36.7 ± 14.2 years (range, 14-69 years), and 77.8% were females. Schoonen et al.¹⁶, have reported that the average incidence of chronic ITP was significantly higher among women compared to men and among men the incidence was bimodal with peaks among ages under 18 and between 75-84 years. Among our patients (male or female), more patents were under 30 years (young adulthood) which agrees with results of other studies 2,4-6. With increasing age, the number of our patients decreased which is also in line with findings reported by Uchiyama et al.¹.

Dal et al.¹⁷, in a case report indicated that hemoglobin and WBC in their patient were 12g/dl and $8 \times 10^3/\mu\text{L}$, respectively. In our study, the range of Hb was 9.6-17.5 g/dL, which shows that probably there is no relation between anemia and

ITP. Also, the range of WBC was $3.9\text{-}20.5(\times 10^3/\mu\text{L})$. Therefore, Hb and WBC count among our chronic ITP patients did not seem to be low and might be even somehow higher than the normal range. Also, we observed that Hb count was higher in our patients with *H. pylori* infection. More studies with higher population is suggested to further evaluate the correlation between Hb and *H. pylori* infection among patients with chronic ITP.

Conclusion

In the present study the peak incidence of chronic ITP was seen among young adults.

The prevalence of *H. pylori* infection among patients with chronic ITP in our study was in line with the prevalence reported from North America and France.

References

1. Uchiyama M, Hattori A, Tanaka T, Miyaji T, Matsuki Y, Fujii T, et al. Acute idiopathic thrombocytopenic purpura complicated with diffuse alveolar hemorrhage in an elderly patient. *Intern Med*. 2009;48(16):1449-52.
2. Fogarty PF. Chronic immune thrombocytopenia in adults: epidemiology and clinical presentation. *Hematol Oncol Clin North Am*. 2009;23(6):1213-21.
3. Saeidi S, Jaseb K, Asnafi AA, Rahim F, Pourmotahari F, Mardaniyan S, et al. Immune Thrombocytopenic Purpura in Children and Adults: A Comparative Retrospective Study in IRAN. *Int J Hematol Oncol Stem Cell Res*. 2014;8(3):30-6.
4. Terrell DR, Beebe LA, Vesely SK, Neas BR, Segal JB, George JN. The incidence of immune thrombocytopenic purpura in children and adults: A critical review of published reports. *Am J Hematol*. 2010;85(3):174-80.
5. Kuhne T, Imbach P, Bolton-Maggs PH, Berchtold W, Blanchette V, Buchanan GR. Newly diagnosed idiopathic thrombocytopenic purpura in childhood: an observational study. *Lancet*. 2001;358(9299):2122-5.
6. Nugent DJ. Immune thrombocytopenic purpura of childhood. *Hematology Am Soc Hematol Educ Program*. 2006:97-103.
7. Noonavath RN, Lakshmi CP, Dutta TK, Kate V. *Helicobacter pylori* eradication in patients with chronic immune thrombocytopenic purpura. *World J Gastroenterol*. 2014;20(22):6918-23.
8. Kühne T, Buchanan GR, Zimmerman S, Michaels

- LA, Kohan R, Berchtold W, et al. A prospective comparative study of 2540 infants and children with newly diagnosed idiopathic thrombocytopenic purpura (ITP) from the Intercontinental Childhood ITP Study Group. *The Journal of pediatrics*. 2003;143(5):605-8.
9. Díaz Conradi A, Díaz de Heredia C, Tusell Puigbert J, Quintana Riera S, Tobeña Boada L, Ortega Aramburu JJ. Chronic and recurrent immune thrombocytopenic purpura. *An Pediatr (Barc)*. 2003;59(1):6-12. (Article in Spanish)
 10. Payandeh M, Raeisi D, Sohrabi N, Zare ME, Kansestani AN, Keshavarz N, et al. Poor platelet Count Response to *Helicobacter Pylori* Eradication in Patients with Severe Idiopathic Thrombocytopenic Purpura. *Int J Hematol Oncol Stem Cell Res*. 2013;7(3):9-14.
 11. Kuwana M. *Helicobacter pylori*-associated immune thrombocytopenia: clinical features and pathogenic mechanisms. *World J Gastroenterol*. 2014;20(3):714-23.
 12. Liebman HA, Stasi R. Secondary immune thrombocytopenic purpura. *Curr Opin Hematol*. 2007;14(5):557-73.
 13. Stasi R, Provan D. *Helicobacter pylori* and Chronic ITP. *Hematology Am Soc Hematol Educ Program*. 2008:206-11.
 14. Rostami N, Keshtkar-Jahromi M, Rahnavardi M, Keshtkar-Jahromi M, Esfahani FS. Effect of eradication of *Helicobacter pylori* on platelet recovery in patients with chronic idiopathic thrombocytopenic purpura: a controlled trial. *Am J Hematol*. 2008;83(5):376-81.
 15. Elezović I, Bosković D, Colović M, Tomin D, Suvajdzić N, Gotić M, et al. Late results of splenectomy in patients with chronic immune thrombocytopenic purpura. *Acta Chir Jugosl*. 2002;49(3):29-34. (Article in Croatian)
 16. Schoonen WM, Kucera G, Coalson J, Li L, Rutstein M, Mowat F, et al. Epidemiology of immune thrombocytopenic purpura in the General Practice Research Database. *Br J Haematol*. 2009;145(2):235-44.
 17. Dal MS, Dal T, Tekin R, Bodakçi E, Düzköprü Y, Ayyıldız MO. Idiopathic thrombocytopenic purpura associated with splenic tuberculosis: case report. *Infez Med*. 2013;21(1):50-5.