Research Article

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Makaleye ait figurler gerekmektedir.

Childhood Immune Thrombocytopenia: Long-term Follow-up Data Evaluated by the Criteria of the International Working Group on Immune Thrombocytopenic Purpura

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Abstract:

Objective: Immune thrombocytopenia (ITP) is a common bleeding disorder in childhood, characterized by isolated thrombocytopenia. The International Working Group (IWG) on ITP recently published a consensus report about the standardization of terminology, definitions, and outcome criteria in ITP to overcome the difficulties in these areas.

Materials and Methods: The records of patients were retrospectively collected from January 2000 to December 2009 to evaluate the data of children with ITP by using the new definitions of the IWG.

Results: The data of 201 children were included in the study. The median follow-up period was 22 months (range: 12-131 months). The median age and platelet count at presentation were 69 months (range: 7-208 months) and 19 × 10^9/L (range: 1 × 10^9/L to 93× 10^9/L), respectively. We found 2 risk factors for chronic course of ITP: female sex (OR = 2.55, CI = 1.31-4.95) and age being more than 10 years (OR = 3.0, CI = 1.5-5.98). Life-threatening bleeding occurred in 5% (n = 9) of the patients. Splenectomy was required in 7 (3%) cases. When we excluded 2 splenectomized cases, complete remission at 1 year was achieved in 70% (n = 139/199). The disease was resolved in 9 (5%; n = 9/194) more children between 12 and 90 months.

Conclusion: Female sex and age above 10 years old significantly influenced chronicity. Therefore, long-term follow-up is necessary in these children.

Key Words: Acute myeloid leukemia, Cytogenetically normal, Mutations, Prognosis, Wilms tumor 1 gene

Abstract:

Amaç: İmmün trombositopeni (ITP), izole trombositopeni ile karakterize çocukluk çağında yaygın görülen bir kanama hastalığıdır. Uluslar arası ITP çalışma grubu (IWG), zorlukların üstesinden gelmek için ITP'de terminolojinin, tanımların ve sürecin standardizasyonu hakkında bir uzlaşı raporu yayınlamıştır.

Gereç ve Yöntemler: ITP'li hastalarımıza ait kayıtlar Ocak 2000 den Kasım 2009'a kadar, geriye yönelik olarak, IWG'nin yeni kriterleri kullanılarak değerlendirilmek üzere toplandı.

Bulgular: İki yüz bir çocuğun verileri çalışmaya dahil edildi. Ortanca takip süresi 22 ay (12-131 ay) idi. Başvuru anında ortanca yaş ve trombosit sayısı, sırası ile 69 ay (7-208 ay) ve 19x10^9/L (1-93x10^9/L) idi. Hastalığın kronikleşmesi açısından iki risk

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faktörü saptadık: Kız cinsiyet (OR=2,55, CI=1,31-4,95) ve yaşın 10'dan büyük olması (OR=3,0, CI=1,5-5,98). Hayatı tehdit edici kanama, hastaların 5%'inde (n=9) görüldü. Splenektomi yapılması,7 hastada (3%) gerekti. İlk bir yılda splenektomi yapılan 2 hasta göz ardı edildiğinde, tam remisyon (CR) 70% (n=139/199) hastada görüldü. Hastalık, 9 çocukta daha (5%; n=9/194) tanıdan12 ile 90 ay sonra düzeldi.

Sonuç: Kız cinsiyet ve yaşın 10'dan büyük olması, kronikleşmeyi belirgin olarak etkiledi. Ancak bu çocuklarda uzun sureli takip gereklidir.

Ahantar Kelimeler: Thrombocytopenia, Long-term survival, Children

Introduction

Immune thrombocytopenia (ITP) is one of the most frequent acquired bleeding diseases in children. It is characterized by destruction of the antibody-sensitized platelets by the reticuloendothelial system and the presence of isolated thrombocytopenia in the absence of splenomegaly with normal white blood cell count and hemoglobin levels. Bone marrow aspirates in these children show normal to increased megakaryocytes with normal maturation and differentiation in the other cells [1,2]. In the majority of the children, it is a self-limiting disease with complete recovery of the platelets. However, 20% to 30% of children develop the chronic form of the disease [3].

Clinical definition, terminology in evaluating patient characteristics, treatment responses, and outcome in both adults and children with ITP show great variety from one study to another. This heterogeneity causes difficulty in obtaining more accurate data on these children. Therefore, a new revision in children and adults has been made for standardization of terminology, definition, and outcome [4].

The aim of this study was to evaluate the demographic data, complaints, history, treatment requirement, response to initial treatment, and long-term outcome in children with ITP according to the recent International Working Group (IWG) report.

Methods

The records of patients diagnosed with ITP from January 2000 to December 2009 at the Department of Pediatric Hematology of Uludağ University Hospital were retrospectively collected. The study was approved by the local ethics committee. The data were evaluated according to the recent consensus report of the IWG on ITP [4]. The diagnosis of ITP was defined as isolated thrombocytopenia of less than 100 × 10^9/L with no other underlying disease.

Patients with the following criteria were excluded: 1) thrombocytopenia due to systemic disease or medication, 2) children less than 6 months old at the onset of the disease, 3) patients with incomplete clinical data. The diagnosis was made with the history, physical examination, complete blood count, and examination of the peripheral blood smear, which was evaluated for both the presence of large platelets and abnormalities that were not consistent with ITP, such as inherited thrombocytopenias, hemolytic uremic syndrome, and other systemic diseases [5]. The diagnosis of ITP and the management, treatment, complications, and outcome of the disease was discussed with each family individually during their outpatient appointments, and written informed consent was obtained from all.

Age of diagnosis, sex, history of preceding infection and vaccination within the last 4 weeks, initial platelet count, bleeding manifestations, seasonal difference, treatment and treatment response at first presentation were recorded. We did not classify the data as primary and secondary on the admission of each patient. However, history of drug ingestion and underlying disease was inquired about at admission and eliminated. Those who later were found to carry autoimmune parameters were separately treated. All children had a minimum of 1 year of follow-up.

Treatment was given to children with either platelet count of less than 10 × 10^9/L and/or severe bleeding symptoms. Children with minor and/or mucous bleeding symptoms with platelet count of less than 20 × 10^9/L to 30 × 10^9/L were closely observed and received treatment on demand [5-7]. Prednisone at 3-5 mg kg-1 day-1 for 3-7 days or intravenous immunoglobulin G (IVIG) at 0.8-1 g kg-1 day-1 were the initial therapeutic options. IWG criteria were used for assessing response to treatment; "complete response" (CR) was defined as platelet count greater than 100 × 10^9/L. "Response" was defined as platelet count between 30 × 10^9/L and 100 × 10^9/L and doubling of the baseline count. Any platelet count lower than 30 × 10^9/L or less than doubling of the baseline count was described as "no response". "Refractory" patients included either those with failed splenectomy or those with either severe ITP or increased risk of bleeding requiring frequent therapeutic intervention [4].

The new terms "newly diagnosed" and "persistent" replaced the previous term "acute" for children diagnosed with ITP within the last 3 months and for cases lasting between 3 and 12 months from diagnosis, respectively. Chronic ITP was defined as persisting thrombocytopenia of less than 100 × 10^9/L lasting for more than 12 months [4]. The possible predicting factors such as sex, platelet count and bleeding symptoms, history of preceding infection, and treatment response for developing chronic diseases were investigated. The effects of age at diagnosis in progression to chronic ITP were evaluated by classifying the study group into 3 different age groups because the rate of chronicity was reported higher in older age groups [8,9]. The groups were as follows: group 1: between ≥6 and ≤12 months, group 2: between >1 year and ≤10 years, and group 3: >10 years. Autoimmune tests such as antinuclear antibody (ANA) and

antiphospholipid antibodies (APAs) were screened. Direct antiglobulin test, human immunodeficiency virus (HIV), hepatitis B (HBV) and hepatitis C (HCV) viruses, and antigenemia were also tested in children with chronic ITP. Helicobacter pylori was also looked for with the urea breath test in the same group.

Life-threatening bleeding was defined as intracranial hemorrhage (ICH) and/or severe hemorrhage at any site requiring blood transfusion. The indication of splenectomy and recovery following the operation were separately addressed for each case. We performed preoperative vaccination and prophylaxis according to the recommendations of the American Society of Hematology (ASH) guidelines published in 1996 [5].

Two patients had splenectomy within the first 12 months of diagnosis. After excluding these cases, the rates of platelet recovery according to patients' platelet count within the first 12 months were evaluated at the 3rd, 6th, and 12th months of diagnosis. The features of children achieving complete remission after 12 months of diagnosis were statistically compared with those remaining nonresponsive at 12 months.

Statistical calculations were performed using SPSS 16 for Windows. Normal distribution was tested using the Shapiro-Wilk test. Numerical data and categorical variables were analyzed by the Mann-Whitney U or t-tests and the chi-square test, respectively. The odds ratio (OR) and 95% confidence interval (CI) were used to determine the increased relative risk. The results are reported as median, maximum, and minimum values. Statistical significance was accepted as $P < 0.05$.

Results

A total of 201 children's records out of 227 were included in the study. The other 26 children's records were not eligible for the study due to incomplete data. The median follow-up period for all children was 22 months (range: 12-131 months).

The median age and platelet count at presentation were 69 months (range: 7-208 months) and 19 × 10^9/L (range: 1 × 10^9/L to 93 × 10^9/L), respectively. Females comprised 54% of the study group (n = 108) while males were 46% (n = 93). The platelet count and age at diagnosis between the sexes were found to be similar ($P > 0.05$).

There was no previous history of infection and vaccination within the 4 weeks before admission for 39% of the children (n = 78). History of upper respiratory tract infection, viral exanthemas, and acute gastroenteritis was seen in 50% (n = 101), 6% (n = 12), and 4% (n = 8) of the patients, respectively. Two patients (1%) had a history of recent vaccination (rabies and diphtheria-tetanus-pertussis) within the preceding month.

The most frequent symptoms were petechia and ecchymosis (71%). Thirty-six children (18%; n = 36/201) were admitted with epistaxis and/or gum bleeding along with petechia and ecchymosis. Twenty-three patients (11%; n = 23/201) had no bleeding manifestations. No significant seasonal fluctuation in the incidence of disease was found ($P > 0.05$).

Therapy was given to 102 (51%) children at first presentation. The rest (n = 99; 49%) were observed according to their clinical symptoms. Initial age and sex did not differ between the treatment and nontreatment arms ($P > 0.05$). IVIG was administered to 66 (65%) children, whereas 36 (35%) received corticosteroids as the first therapeutic choice. The features of the different treatment arms at diagnosis are given in Table 1. Anti-D was not initially given to any child. Treatment response was found similar for both drugs ($P > 0.05$). Drug-related acute complications were seen in 2 (1%) children. Aseptic meningitis due to IVIG was observed in one of these patients, and the other developed severe tonsillitis following corticosteroid treatment.

Bone marrow aspiration was required in 106 (53%) children. In 36 of them, it was done prior to corticosteroid therapy. In the rest, it was performed due to persistent thrombocytopenia lasting longer than 6 months.

Within the first 12 months, 2 children required urgent splenectomy. When we excluded these cases, 70% (n = 139) of the cases were defined as persistent ITP. The rest of the patients (30%; n = 60) had chronic ITP lasting more than 12 months. The median platelet counts in persistent and chronic ITP cases were 18 × 10^9/L (range: 1 × 10^9/L to 93 × 10^9/L) and 21 × 109/L (range: 2 × 10^9/L to 85 × 10^9/L), respectively. Platelet counts and bleeding symptoms at diagnosis, history of preceding infections, and treatment response were found similar between the persistent and chronic groups ($P > 0.05$). However, females had a significantly higher incidence of developing chronic ITP than males ($P = 0.007$) (Figure 1).

The median age of children with persistent ITP was 61 months (range: 7-208 months). It was found to be 88 months (range: 10-196 months) in the chronic ITP group. The difference between the 2 groups was significant ($P = 0.002$). When we evaluated children in 3 different age groups according to their presenting age, children older than 10 years had a significantly higher incidence of developing chronic ITP than the others (Figure 2).

Among the possible predicting factors for developing chronic ITP, the major predictors were found to be age of more than 10 years old at presentation (OR = 3.0, CI = 1.5-5.98) and female sex (OR = 2.55, CI = 1.31-4.95). When we excluded children above 10 years of age, females still had a significantly higher risk of chronicity than males (OR = 4.01, CI = 1.70-9.50).

The rate of recovery according to patients' platelet counts at the 3rd, 6th, and 12th months of diagnosis excluding the

2 splenectomized cases are shown in Figure 3. Eleven (15%) out of 71 children with platelet counts lower than 100 × 10^9/L at 6 months achieved CR at 12 months. In total, the platelet count in 139 (70%) out of 199 children gradually rose to normal levels (≥100 × 10^9/L) during 12 months of follow-up. However, this increase was not statistically significant (P > 0.05).

In addition, platelet recovery subsequently occurred during 20 months (range: 14-90 months) of follow-up in 9 (15%) out of 60 children who were previously defined as "chronic" at 12 months of diagnosis. The sex, age, and initial platelet counts of these children did not differ from those of the nonresponders (P > 0.05).

In total, 15 out of 201 (7.5%) children were refractory, including cases with severe bleeding (n = 9) and 6 other children with high risk of bleeding requiring frequent therapy intervention. The characteristics of children with severe bleeding are given in Table 2. One child developed spontaneous CR. Splenectomy had to be performed in 7 of them due to insufficient treatment response to control bleeding symptoms. The time interval from the first admission to splenectomy was 76 months (range: 3-125 months). The median age at time of splenectomy was 11 years (range: 6.5-20.7 years). Splenectomy had to be performed urgently in 2 of them within the first 12 months of diagnosis. One patient developed intracranial hemorrhage at 3 months after diagnosis and the other had severe melena and gross hematuria concomitantly requiring multiple transfusions 8 months after diagnosis. CR was achieved immediately in 4 of the 7 splenectomized cases. However, in the other 3 splenectomized children, platelet counts shortly after the operation decreased from normal ranges to <20 × 10^9/L. Therefore, the number of refractory cases declined from 15 to 10 (5%) patients during follow-up.

Autoimmune diseases were screened in all 60 children with chronic ITP. ANA was found positive in 10% (n = 6, 3 females and 3 males) of the children, whereas 8% (n = 5) of them had APA positivity. Direct antiglobulin test was also found positive in 3% (n = 2) of them without any clinical or laboratory signs of hemolytic anemia. The median age and platelet count of these children in admission were 129 months (range: 57-174 months) and 27 × 10^9/L (range: 7 × 10^9/L to 98 × 10^9/L), respectively. Their median age, platelet count, and sex did not differ from those of the other chronic cases (P > 0.05). Only one child developed microscopic hematuria. Viral diseases as HIV, HBV, and HCV were also screened in 87% (n = 52) of the chronic patients, and 4% (n = 2) were found positive for the hepatitis B antigen. All of them were negative for HIV and HCV infections. Eleven out of 60 patients with chronic ITP were screened for H. pylori. Six out of 11 children (67%) were found positive and H. pylori eradication was commenced. None had an increase in platelet count following the eradication.

Low platelet count persisted in 60 (30%) out of 199 children at 12 months after diagnosis after excluding the 2 patients splenectomized within 1 year. Nine (15%) out of these 60 chronic cases went into CR between 14 and 90 months, and 5 (8%) had a splenectomy between 22 and 125 months. In total, 46 (24%; n = 46/194) children remained in the chronic ITP group after excluding these 5 splenectomized cases. The rest of the children achieved CR (76%; n = 148/194). Of them, 139 went into CR within 1 year, whereas in the others (6%; n = 9/148), the disease was resolved after 1 year.

Discussion

The investigation and management of ITP both in adults and children vary widely. This heterogeneity causes difficulties in comparing the results of clinical trials and producing a reliable metaanalysis with existing data. To overcome this problem, the IWG in 2009 published a consensus report on standardization of terminology, definition, and outcome criteria in ITP for both adults and children [4]. In the current study, we retrospectively evaluated the results of children with ITP according to this report. One of the changes in the criteria of defining ITP was the platelet count; the

Table 1. The features of the different treatment arms at diagnosis

	IVIG group, [a] (n = 66)	Steroid group, b (n = 36)	No treatment group, c (n = 99)	P-value
Age (months)	56.5 (7-200)	77.5 (14-202)	70 (7-208)	a vs. b, <0.05 a vs. c, <0.05 b vs. c, >0.05
Sex (male/female)	33/33	12/24	48/51	>0.05
Platelet count (mean ± standard deviation)	13.328 ± 11.784	16.297 ± 15.813	40.255 ± 23.756	a vs. b, >0.05 a vs. c, <0.0001 b vs. c, <0.0001
Mucosal bleeding	15 (22.7%)	9 (25%)	13 (13.1%)	>0.05
Chronic course	16 (24.2%)	14 (38.9%)	30 (30.3%)	>0.05

Table 2. The features of the children with severe bleeding symptoms and characteristics of splenectomized patients.

Sex	Age at diagnosis/age at the time of splenectomy (years)	Time interval between diagnosis and splenectomy (months)	Time interval between diagnosis and severe bleeding episode (months)	Platelet count × 109/L at time of bleeding episode	Bleeding site	Need of transfusion	Splenectomy	Outcome
F	16.6	-	3	6.4	Menorrhagia	Yes	No	CR
M	5.5	-	20	12	Melena	Yes	No	NR
F	9.6/18.6	108	83	6.8	Epistaxis	Yes	Yes	CR
M	14.3/20.7	77	29	6	Hematuria	Yes	Yes	R→NR
M	6.2/10.6	53	7	9.8	Melena	Yes	Yes	CR
F	1.7/8	76	5.5	11	Hematuria + melena	Yes	Yes	CR
F*	10.3/11	8	8	3	Menorrhagia +intraabdominal hemorrhage	Yes	Yes	R→NR
F*	6.2/6.5	3	3	1.8	Melena +intracranial hemorrhage	Yes	Yes	CR
M	2.3/14.8	125	108	14.4	Hematochezia	Yes	Yes	NR

*Splenectomy was performed within the first 12 months of diagnosis.
CR: complete response, R: response, NR: no response.

threshold for diagnosis was established as less than 100 × 10^9/L instead of the previously used platelet count of 150 × 10^9/L [10-12].

Another change made by the IWG was in the term "chronic ITP". The group reserved this term for children with ITP lasting more than 12 months instead of 6 months [4]. In the current study, complete remission at 6 months was obtained in 64% of children. However, this rate at 12 months and 90 months was increased to 70% and 76%, respectively. Various studies also report that thrombocytopenia resolves in around 70% of children with ITP by 6 months [3,13]. However, complete remission could be achieved in a time longer than this period [14]. The chances of spontaneous remissions are still significant during long-term follow-up, both in adults and children [15,16]. Imbach et al. [2] reported that 25% of children with persistent thrombocytopenia at 6 months had recovered by 12 months. In our study, 11 (15%) out of 71 children with low platelet count at 6 months achieved CR at 12 months (Figure 3). In addition, when the follow-up period was prolonged beyond 12 months, recovery in platelet counts occurred in 9 (15%; n = 9/60) more children who were defined as chronic at 12 months. Watts [13] also reported that thrombocytopenia resolved spontaneously in 37 (37%) out of 99 patients with persistent thrombocytopenia between 7 and 96 months from the initial diagnosis. Our recovery rate after 1 year seems to be lower than in that study. However, the definition of thrombocytopenia level and duration of follow-up periods differ between the 2 studies. In addition, all of the children in our study have not yet fully completed the maximum follow-up time of 131 months. Our recovery rate may gradually increase when the maximum follow-up period is completed by all patients.

In the current study, presenting platelet counts, initial bleeding manifestations, seasonal changes, requirement of treatment and treatment response, and history of previous infection were found to be similar among the patients with acute and chronic ITP. In the literature, the information about these parameters varies widely. The reason for this could be attributed to the heterogeneity of the studies using different criteria in different sizes of study groups. The largest study about childhood ITP including 2540 children reported that the mean age and the male/female ratio of the cases of acute and chronic disease were similar. However, it showed that chronic ITP was seen less frequently in infants than in children above 10 years of age [8]. Yaprak et al. [18] from Turkey also reported that children older than 10 years of age had an at least 2-fold increased probability of a chronic outcome. Similar findings were also determined by other reports, revealing that older age is an important predictor of the chronic disease [13,14]. In the current study, we also supported this result, indicating that the risk of developing chronic ITP significantly increased in children older than 10 years of age (OR: 3.0, CI: 1.5-5.98). The other predictor for chronic ITP in our data was female sex. A significant increase of chronicity was noted in females (OR: 2.55, CI: 1.31-4.95). Several studies noted no difference in the incidence of chronic ITP in male versus female patients [13,19]. However, females older than 10 years of age have been reported to develop a more chronic course [6,20,21]. In our study, when we excluded children above 10 years of age, females still had a significantly higher risk of chronicity than males (OR = 4.01, CI = 1.70-9.50).

In our cohort, 51% of the patients were treated at diagnosis either with corticosteroids or IVIG. Treatment response did not differ by therapy. Many other studies also supported our finding [13.19]. Watts [13] found no difference in response to any therapy in a series consisting of 409 children. Various studies from Turkey also reported that the therapy response to prednisolone and IVIG treatments were similar [22-24]. In our cohort, 49% of the children who presented with minor and/or mucous bleeding symptoms were closely observed and received treatment on demand. The ASH guidelines of 1996 suggested treatment for children with platelet counts of <20 × 10^9/L and significant mucous membrane bleeding and for those with counts of <10 × 10^9/L and minor purpura [5]. They also recommended hospitalization and treatment intervention in a child with severe, life-threatening bleeding regardless of the platelet counts and for a child with platelet counts of <20 × 10^9/L and mucous membrane bleeding. However, German and British guidelines published in later years did not recommend treatment for children with a platelet count of <10 × 10^9/L without active bleeding [6,7]. Duru et al. [23] from Turkey also recommended no treatment for children without active bleeding even if they had mucosal bleeding, unless it was continuous and extensive. Thus, the issue of treating patients with acute ITP presenting with platelet counts of <10 × 10^9/L and minor bleeding such as petechiae or bruising symptoms and/or mucosal bleeding remained equivocal during the years 2000-2009. Current opinion suggests that the treatment decision should be made according to various factors such as the severity of bleeding symptoms, the platelet count, and psychosocial and lifestyle issues [25,26]. There are no data showing that the course of the disease is altered by the treatment. Therefore, treatment is reserved for children at high risk of serious bleeding. Moreover, the international consensus report on ITP suggested that children without bleeding may not require therapy regardless of their platelet count [26]. The ASH in 2011 also recommended that children without bleeding or with minor bleeding (defined as skin manifestations only, such as bruising and petechia) should be managed with observation alone regardless of their platelet count, but if the child develops an episode of epistaxis that lasts about 15 min, a decision should be made to treat based on the bleeding [27]. In our series, 13.1% of children in the "no treatment" arm had mild mucous bleeding symptoms with platelet counts of ≥10 × 10^9/L. Serious bleeding in our group was determined in 5% (n = 9) of the children. Various studies also reported that clinically significant bleeding symptoms were observed in between 3% and 6% of children with ITP [6,13,28]. In our series, gastrointestinal symptoms

and renal bleeding symptoms occurred more frequently. In pediatric literature, their incidence ranges from 0.1% to 0.5% [15,29]. ICH occurred only in one child (0.5%). None of the children in our study died of complications related to ITP or treatment. In pediatric literature, this incidence ranges from 0.1% to 0.5% [17,29].

In the current study, splenectomy had to be performed in 4% (n = 7) of the children with serious and frequent bleeding episodes (Table 1). The median time from diagnosis to splenectomy was 76 months (range: 3-125 months). Only 2 patients with acute ITP underwent splenectomy within 8 months of diagnosis due to life-threatening bleeding. The rest were chronic cases. Complete remission was achieved in 4 (57%) of 7 splenectomized cases. The recovery rate in the literature varies from 66% to 86% in splenectomized children [30,31]. Splenectomy is rarely recommended in children with ITP since the risk of death from ITP is reported as 0.5% [27]. This rate is lower than the risk of postsplenectomy overwhelming sepsis, which is up to 3% in children [32]. However, it can be performed if the bleeding is life-threatening and uncontrolled.

Overall, 10% (n = 6) of the 60 screened chronic ITP children showed ANA positivity, whereas 8% (n = 5) were APA-positive. In adults, 1% to 5% of patients with ITP later develop systemic lupus erythematosus (SLE) [33]. In children, 2 main studies evaluated the risk of developing SLE. Hazzan et al. [34] noted that 4% of children (8/222) developed SLE during a mean 4.2 years of follow-up. Zimmerman and Ware [35] suggested a careful follow-up for ANA-positive children with ITP developing autoimmune symptoms. In our study, only one child with ANA positivity developed microscopic hematuria. The role of H. pylori infection in ITP is controversial [26]. The recent guidelines of the ASH do not recommend routine testing for H. pylori in children with persistent and chronic ITP [27]. HIV and HCV screening is recommended in adults upon diagnosis of ITP [26,27]. However, it has been recommended in children if there is a clinical suspicion or high local prevalence and no improvement after 3 to 6 months [26]. We also screened HBV in our cohort since Turkey is considered one of the countries with intermediate endemicity in Europe by the World Health Organization [36].

In summary, excluding splenectomized cases, 76% (n = 148/194) of patients achieved CR. The disease was resolved in 139 (94%) of 148 children within 1 year. In addition, 9 (6%) of 148 children achieved CR after 1 year. Our data support the IWG's suggestion that a minimum 1 year of follow-up should be taken into consideration by pediatricians. Girls and children older than 10 years old also carry significantly higher risks of developing the chronic form of the disease.

Conflict of interest

The authors declare no conflict of interest.

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