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Pediatrics

Idiopathic Thrombocytopenic Purpura in Patients Admitted to Benghazi Children Hospital

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Abstract **Original Research Article**

Introduction: Childhood immune thrombocytopenia (ITP) is an acquired autoimmune disorder characterized by isolated thrombocytopenia (peripheral blood platelet count <100 x 109/L). ITP is one of the most common bleeding disorders in children, with an incidence of approximately four per 100.000 per year. ***Aim:*** Aim is to review presenting features, response to therapy, and natural history of ITP treated at Benghazi medical center, department of pediatric. ***Methods:*** Cross-sectional descriptive study was carried out at the Pediatric Department of Benghazi medical center. ***Results*:** The study included 86 patients their mean age was 4.2±2.7years,with minimum age 11months and maximum age 12years.Male to female ratio was 1:1.15, female constitute to more than half (53.5%) .Mean duration of hospital stay was 5.2± 4.3 days , minimum duration was one day and maximum was 23 days. Bruise was presented by 84.9% of patients, 67.4% was presented by history of upper respiratory tract infection and 30.2% presented with bleeding from different site. Repeated admission was recorded in 93% of the patients. Family history of ITP was recorded in 4.7%. Respiratory manifestation was present in 4.8%, CNS manifestation present in 2.4%, hepatosplenomegaly in 2.4%, Lymphoadnopathy in 2.4%, renal manifestation in 1.2% and musculoskeletal manifestation in 1.2%. WBC count was >4 in 1.2% , 4-11 in 73.3% and 25.5% had level > 11 $x10^3$/ml, mean level was 9.7± 3.4 $x10^3$/ ml. Sever decrease of platelets was recorded in 54.7% of the patients , 36% had moderate decrease , mild recorded in 9.3% and no one had normal count .Peripheral blood smear, 26.7% of patients had normocytic normochromic. 25.5%was microcytic hypochromic 4.7% had microcytic normochromic, 1.2% had atypical lymphocyte with decrease plat, 1.2% had Normocytic hypochromic, 14% were normal and 15.5% not done. Bone marrow was normal in 68.5% of the patients, 1.2% of patients had thrombocytopenia, 1.2% of them had aplastic anemia, 1.2% of them had increase megakaryocytic and in 27.9% bone marrow not done Steroid was the drug of choice to 24.4%, sand globulin was the treatment to 47.6% of patients and 14% treated by both drugs, while 14% not receive any treatment. Response to treatment was recorded in 95.9%.Complication was recorded in 37.2% of patients were become recurrent attack (chronic) and 62.8% had no recurrence.

Keywords: Immune Thrombocytopenic Lymphoadnopathy.

INTRODUCTION

Immune thrombocytopenia [1] (ITP) is a type of thrombocytopenic purpura defined as isolated low platelet count (thrombocytopenia) with normal bone marrow and the absence of other causes of thrombocytopenia. It causes a characteristic purpuric rash and an increased tendency to bleed. Two distinct clinical syndromes manifest as an acute condition in children and a chronic condition in adults. The acute form often follows an infection and has a spontaneous resolution within two months. Chronic immune thrombocytopenia persists longer than six months with a specific cause being unknown. ITP is an autoimmune disease with antibodies detectable against several platelet surface antigens.

ITP is diagnosed by a low platelet count in a complete blood count (a common blood test). However, since the diagnosis depends on the exclusion of other causes of a low platelet count, additional investigations (such as a bone marrow biopsy) may be necessary in some cases. In mild cases, only careful observation may be required but very low counts or significant bleeding

may prompt treatment with corticosteroids, intravenous immunoglobulin, anti-D immunoglobulin, or immunosuppressive medications. Refractory ITP (not responsive to conventional treatment) may require splenectomy, the surgical removal of the spleen. Platelet transfusions may be used in severe bleeding together with a very low count. Sometimes the body may compensate by making abnormally large platelets.

Sign & symptom

Signs include the spontaneous formation of bruises (purpura) and petechiae (tiny bruises), especially on the extremities, bleeding from the nostrils and/or gums, and menorrhagia (excessive menstrual bleeding), any of which may occur if the platelet count is below 20,000 per µl [2]. A very low count (<10,000 per µl) may result in the spontaneous formation of hematomas (blood masses) in the mouth or on other mucous membranes. Bleeding time from minor lacerations or abrasions is usually prolonged. Serious and possibly fatal complications due to extremely low counts (<5,000 per µl) include subarachnoid or intra cerebral hemorrhage (bleeding inside the skull or brain), lower gastrointestinal bleeding or other internal bleeding. An ITP patient with extremely low count is vulnerable to internal bleeding caused by blunt abdominal trauma, as might be experienced in a motor vehicle crash. These complications are not likely when the platelet count is above 20,000 per µl.

Pathogenesis

In approximately 60 percent of cases, antibodies against platelets can be detected [3]. Most often these antibodies are against platelet membrane glycoproteins IIb-IIIa or Ib-IX, and are of the immunoglobulin G (IgG) type. The Harrington–Hollingsworth experiment, established the immune pathogenesis of ITP [4].

The coating of platelets with IgG renders them susceptible to opsonization and phagocytosis by splenic macrophages, as well by Kupffer cells in the liver. The IgG autoantibodies are also thought to damage megakaryocytes, the precursor cells to platelets, although this is believed to contribute only slightly to the decrease in platelet numbers. Recent research now indicates that impaired production of the glycoprotein hormone thrombopoietin, which is the stimulant for platelet production, may be a contributing factor to the reduction in circulating platelets. This observation has led to the development of a class of ITP-targeted medications referred to as thrombopoietin receptor agonists. The stimulus for auto-antibody production in ITP is probably abnormal T cell activity [5-7]. Preliminary findings suggest that these T cells can be influenced by medications that target B cells, such as rituximab [8].

Diagnosis

The diagnosis of ITP is a process of exclusion. First, it has to be determined that there are no blood abnormalities other than a low platelet count, and no physical signs other than bleeding. Then, secondary causes (5–10 percent of suspected ITP cases) should be excluded. Such secondary causes include leukemia, medications (e.g., quinine, heparin), lupus erythematosus, cirrhosis, HIV, hepatitis C, congenital causes, antiphospholipid syndrome, von Willebrand factor deficiency, onyalai and others[2, 9]. In approximately one percent of cases, autoimmune hemolytic anemia and ITP coexist, a condition referred to as Evans syndrome, a condition that points to CLL as a possible cause [9].

Despite the destruction of platelets by splenic macrophages, the spleen is normally not enlarged. In fact, an enlarged spleen should lead to a search for other possible causes for the thrombocytopenia. Bleeding time is usually prolonged in ITP patients. However, the use of bleeding time in diagnosis is discouraged by the American Society of Hematology practice guidelines [10] and a normal bleeding time does not exclude a platelet disorder [11]. Bone marrow examination may be performed on patients over the age of 60 and those who do not respond to treatment, or when the diagnosis is in doubt [9]. On examination of the marrow, an increase in the production of megakaryocytes may be observed and may help in establishing a diagnosis of ITP. An analysis for anti-platelet antibodies is a matter of clinician's preference, as there is disagreement on whether the 80 percent specificity of this test is sufficient to be clinically useful [9].

Treatment

With rare exceptions, there is usually no need to treat based on platelet counts. Many older recommendations suggested a certain platelet count threshold (usually somewhere below 20.0/µl) as an indication for hospitalization or treatment. Current guidelines recommend treatment only in cases of significant bleeding. Treatment recommendations sometimes differ for adult and pediatric ITP [12].

Steroid

Initial treatment usually consists of the administration of corticosteroids, a group of medications that suppress the immune system. The dose and mode of administration is determined by platelet count and whether there is active bleeding: in urgent situations, infusions of dexamethasone or methylprednisolone may be used, while oral prednisone or prednisolone may suffice in less severe cases. Once the platelet count has improved, the dose of steroid is gradually reduced while the possibility of relapse is monitored. 60–90 percent will experience a relapse during dose reduction or cessation [9, 13]. Long-term steroids are avoided if possible because of potential

side-effects that include osteoporosis, diabetes and cataracts [14].

Anti D

Another option, suitable for Rh-positive patients with functional spleens is intravenous administration of Rho (D) immune globulin [Human; Anti-D]. The mechanism of action of anti-D is not fully understood. However, following administration, anti-D-coated red blood cell complexes saturate Fcγ receptor sites on macrophages, resulting in preferential destruction of red blood cells (RBCs), therefore sparing antibody-coated platelets. There are two anti-D products indicated for use in patients with ITP: WinRho SDF and Rhophylac. The most common adverse reactions are headache (15%), nausea/vomiting (12%) chills (<2%) and fever (1%).

I.V Immunoglobulin

Intravenous immunoglobulin (IV Ig) may be infused in some cases in order to decrease the rate at which macrophages consume antibody-tagged platelets. However, while sometimes effective, it is costly and produces improvement that generally lasts less than a month. Nevertheless, in the case of an ITP patient already scheduled for surgery that has a dangerously low platelet count and has experienced a poor response to other treatments, IVIg can rapidly increase platelet counts, and can also help reduce the risk of major bleeding by transiently increasing platelet counts.

Thrombopoietin receptor agonist

Thrombopoietin receptor agonists are pharmaceutical agents that stimulate platelet production in the bone marrow. In this, they differ from the previously discussed agents that act by attempting to curtail platelet destruction [22]. Two such products are currently available:

Romiplostim (trade name Nplate) is a thrombopoiesis stimulating Fc-peptide fusion protein (peptibody) that is administered by subcutaneous injection. Designated an orphan drug in 2003 under United States law, clinical trials demonstrated Romiplostim to be effective in treating chronic ITP, especially in relapsed post-splenectomy patients [23, 24].

Romiplostim was approved by the United States Food and Drug Administration (FDA) for long-term treatment of adult chronic ITP on August 22, 2008 [2 5]. Eltrombopag (trade name Promacta in the USA, Revolade in the EU) is an orally-administered agent with an effect similar to that of Romiplostim. It too has been demonstrated to increase platelet counts and decrease bleeding in a dose-dependent manner [26]. Developed by GlaxoSmithKline and also designated an orphan drug by the FDA, Promacta was approved by the FDA on November 20, 2008[27]. Side effects of thrombopoietin receptor agonists include headache, joint or muscle pain, dizziness, nausea or vomiting, and an increased risk of blood clots [22].

Surgery

Splenectomy (removal of the spleen) may be considered in patients who are either unresponsive to steroid treatment, have frequent relapses, or cannot be tapered off steroids after a few months. Platelets which have been bound by antibodies are taken up by macrophages in the spleen (which have Fc receptors), and so removal of the spleen reduces platelet destruction. The procedure is potentially risky in ITP cases due to the increased possibility of significant bleeding during surgery. Durable remission following splenectomy is achieved in 75 percent of ITP cases [28]. The use of splenectomy to treat ITP has diminished since the development of steroid therapy and other pharmaceutical remedies [29].

Platelet transfusion

Platelet transfusion alone is normally not recommended except in an emergency, and is usually unsuccessful in producing a long-term platelet count increase. This is because the underlying autoimmune mechanism that is destroying the patient's platelets will also destroys donor platelets, and so platelet transfusions are not considered a long-term treatment option.

H. Pylori

In adults, particularly those living in areas with a high prevalence of Helicobacter pylori (which normally inhabits the stomach wall and has been associated with peptic ulcers), identification and treatment of this infection has been shown to improve platelet counts in a third of patients. In a fifth, the platelet count normalized completely; this response rate is similar to that found in treatment with rituximab, which is more expensive and less safe [30]. In children, this approach is not supported by evidence, except in high prevalence areas. Urea breath testing and stool antigen testing perform better than serology-based tests; moreover, serology may be false-positive after treatment with IVIG [31].

Other agent

Dapsone (also called diphenylsulfone, DDS, or avlosulfon) is an anti-infective sulfone medication. Dapsone may also be helpful in treating lupus, rheumatoid arthritis, and as a second-line treatment for ITP. The mechanism by which Dapsone assists in ITP is unclear but an increased platelet count is seen in 40–60 percent of recipient [32, 33]. The off-label use of rituximab, a chimeric monoclonal antibody against the B cell surface antigen CD20, may sometimes be an effective alternative to splenectomy. However, significant side-effects can occur, and randomized controlled trials are inconclusive [34].

Epidemiology

A normal platelet count is considered to be in the range of 150,000–450,000 per microliter (μl) of blood for most healthy individuals. Hence one may be considered thrombocytopenic below that range, although the threshold for a diagnosis of ITP is not tied to any specific number. The incidence of ITP is estimated at 50–100 new cases per million per year, with children accounting for half of that amount. At least 70 percent of childhood cases will end up in remission within six months, even without treatment [35-37]. Moreover, a third of the remaining chronic cases will usually remit during follow-up observation, and another third will end up with only mild thrombocytopenia (defined as a platelet count above 50,000) [35]. A number of immune related genes and polymorphisms have been identified as influencing predisposition to ITP, with FCGR3a-V158 allele and KIRDS2/DL2 increasing susceptibility and KIR2DS5 shown to be protective[38, 39]. ITP is usually chronic in adults [40] and the probability of durable remission is 20–40 percent [13]. The male to female ratio in the adult group varies from 1:1.2 to 1.7 in most age ranges (childhood cases are roughly equal for both genders) and the median age of adults at the diagnosis is 56–60 [9]. The ratio between male and female adult cases tends to widen with age. In the United States, the adult chronic population is thought to be approximately 60,000—with women outnumbering men approximately 2 to 1, which has resulted in ITP being designated an orphan disease [41].

The mortality rate due to chronic ITP varies but tends to be higher relative to the general population for any age range. In a study conducted in Great Britain, it was noted that ITP causes an approximately 60 percent higher rate of mortality compared to gender andage-matched subjects without ITP. This increased risk of death with ITP is largely concentrated in the middle-aged and elderly. Ninety-six percent of reported ITP-related deaths were individuals 45 years or older. No significant difference was noted in the rate of survival between males and females [42].

AIM

1. To know the predisposing factor for ITP.
2. To determine the response to treatment
3. To know the prognosis of ITP.

METHODOLOGY

Study Design

Descriptive cross-sectional study

Participants

All patients admitted to Pediatric hospital during 2016-2017

Time study

From first of January of 2016 to 31 December 2017

Inclusion criteria

All patients Libyan and non-Libyan admitted to hospitals, both sexes.

Tool of Data Collection

Data collection

All data available in medical Records of patients will be collected as:

Age, Gender, address, Predisposing …etc Appendix.

DATA ANALYSIS

Data will be analyzed using (SPSS) statistical package of social science program version 23

Descriptive statistics

As mean, standard deviation, median and mode will be calculated. Data will be presented in form of tables and figures, were the figures will be done by Microsoft.

RESULTS

Table-1: Distribution of patients by age

Age /year	No.	%
<1	1	1.2
1—4	53	61.6
5—8	25	29.1
9—12	7	8.1
Total	86	100

Mean=4.2years. Median = 4 years. Std. Deviation =2.7 years Minimum=11months. Maximum= 12 years.

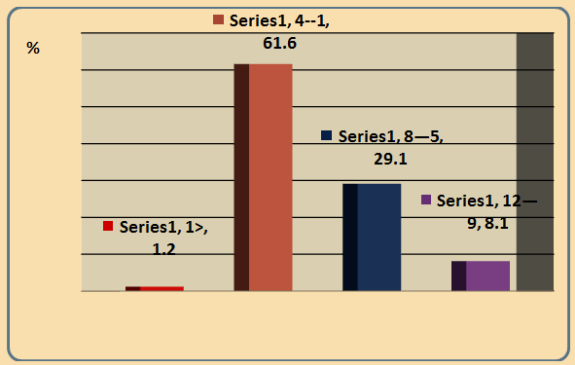

Fig-1: Distribution of patients by age

Table-2: Distribution of patients by sex

Sex	No.	%
Male	40	46.5
Female	46	53.5
Total	86	100

Male: Female = 1:1.15

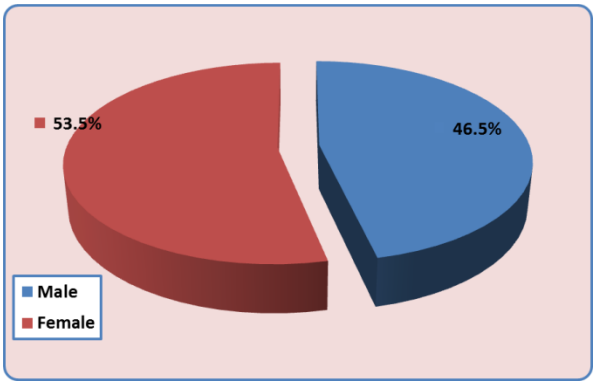

Fig-2: Distribution of patients by sex

Table-3: Distribution of patients by nationality

Nationality	No.	%
Libyan	85	98.8
Not Libyan	1	1.2
Total	86	100

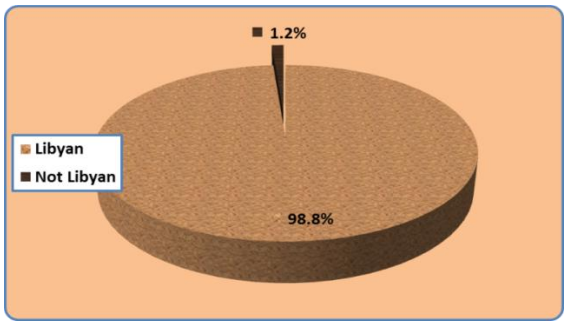

Fig-3: Distribution of patients by nationality

Table -4: Distribution of patients by address

Address	No.	%
Benghazi	64	74.4
Outside Benghazi	22	25.6
Total	86	100

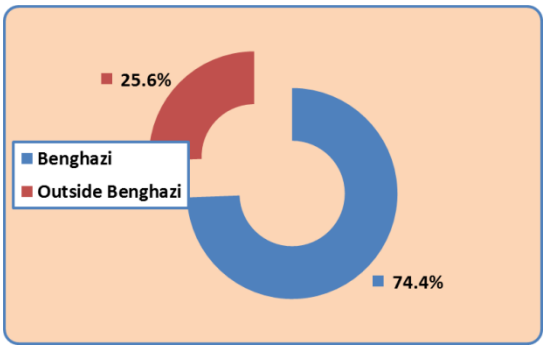

Fig-4: Distribution of patients by address

Table -5: Distribution of patients according to duration of hospital stay

Duration of hospital stay/ day	No.	%
≤7	68	79
>7	18	21
Total	86	100

Mean=5.2days. Median =4days. Std. Deviation =4.3days. Minimum=1day. Maximum= 23 days

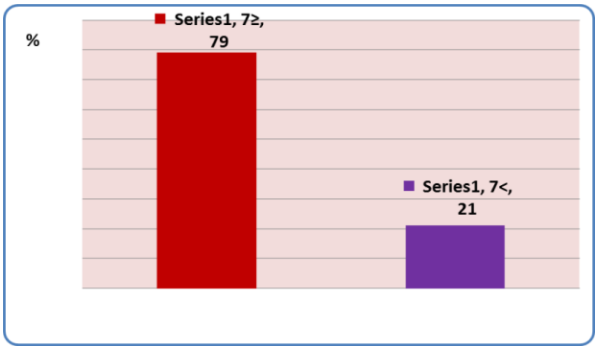

Fig-5: Distribution of patients according to duration of hospital stay

Table-6: Clinical Presentation

Presenting history	No.	%
Bruise	73	84.9
History of upper respiratory tract infection	58	67.4
Bleeding	62	30.2

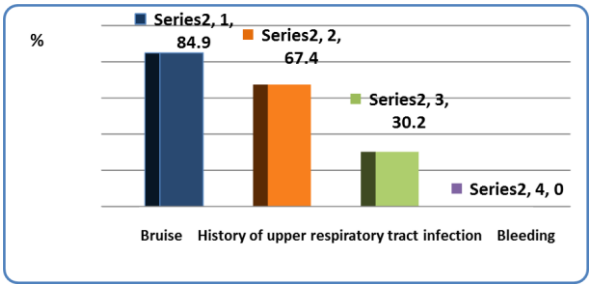

Fig-6: Clinical Presentation

Table-7: Distribution of patients according past medical history of ITP.

Past medical history of ITP	No.	%
Repeated Admission	80	93
1st attack	6	7
Total	86	100

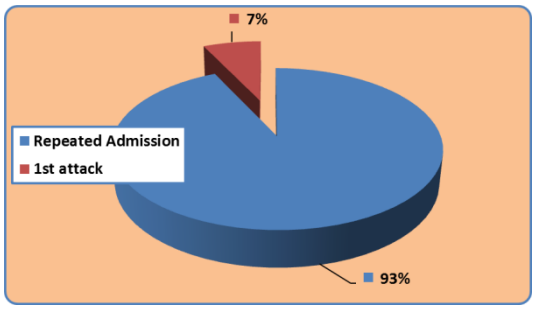

Fig-7: Distribution of patients according past medical history of ITP

Table-8: Distribution of patients according to family history of ITP

Family history of ITP	No.	%
Affected	4	4.7
Not affected	82	95.3
Total	86	100

*2 their brothers, 2their cousins

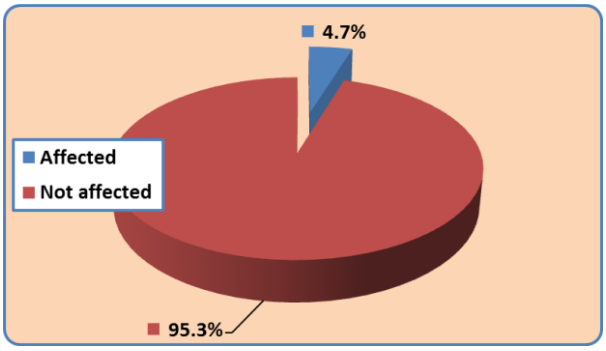

Fig-8: Distribution of patients according to family history of ITP

General examination of the patients

Table-9: Distribution of patients according to clinical finding.

Clinical finding	No.	%
Petchia	**64**	**74.4**
Bruising	**19**	**2**
Purpuric	**7**	**8.1**
Black eye	**4**	**4.7**
Pallor	**82**	**95.3**
Shock	**1**	**1.2**

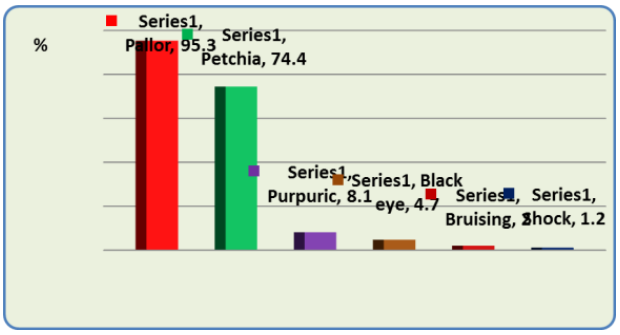

Fig-9: Distribution of patients according to clinical finding

Table-10: Systemic examination of the patients

Systemic examination of the patients	No.	%
CNS manifestation	2	2.4
Hepatospleenomegaly	2	2.4
Lymphoadnopathy	2	2.4
Renal manifestation.	1	1.2
Respiratory manifestation	4	4.8
Musculoskeletal manifestation	1	1.2

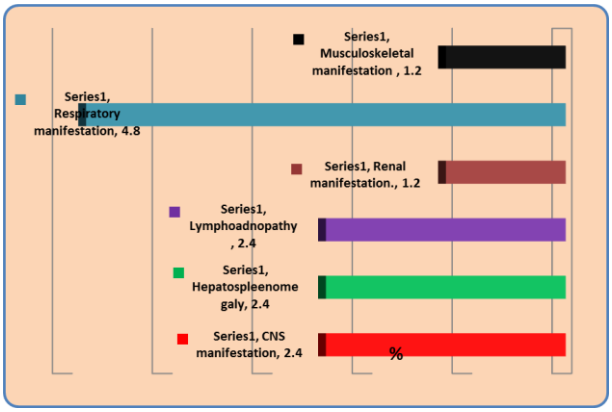

Fig-10: Systemic examination of the patients

Table-11: WBC count

WBC count /x10^3/ml	No.	%
<4	**1**	**1.2**
4—11	**63**	**73.3**
>11	**22**	**25.5**
Total	**86**	**100**

Mean= 9.7 x10^3/ml. Median =9.4 x10^3/ml. Std. Deviation =3.4 x10^3/ml. Minimum=2.7 x10^3/ml. Maximum=20 x10^3/ml

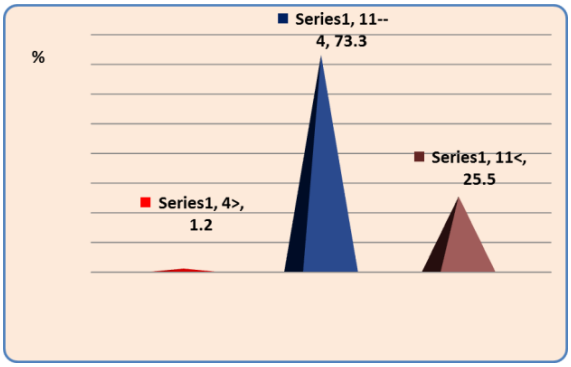

Fig-11: WBC count

Table-12: Hemoglobin level

Hemoglobin level /g/dl	No.	%
3 - 6	**2**	**2.3**
7 - 10	**28**	**32.5**
11 – 14	**55**	**64**
>14	**1**	**1.2**
Total	**86**	**100**

Mean= 10.9/g/dl. Median = 11.5/g/dl. Std. Deviation =1.8/g/dl. Minimum= 3.8/g/dl. Maximum=14.3/g/dl.

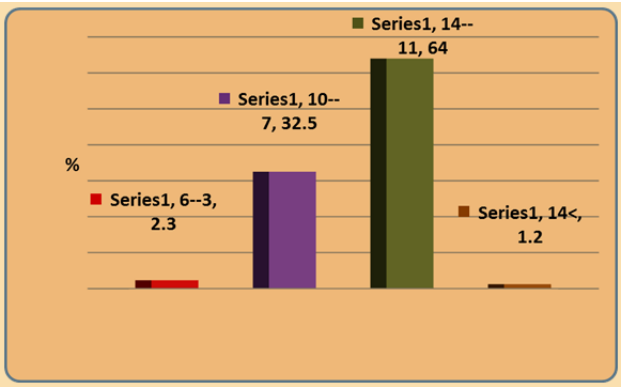

Fig-12: Hemoglobin level

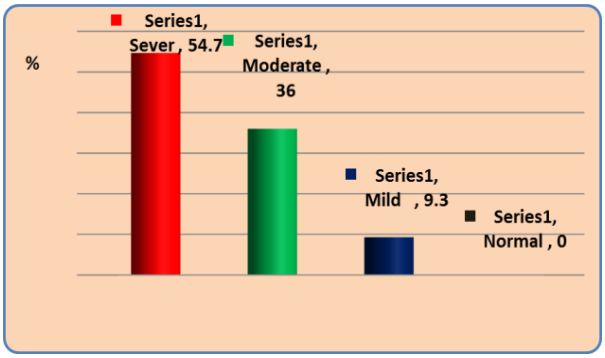

Fig-13: Platelets count

Table-13: Platelets count

Platelets count 10^3/l	No.	%
Sever <20	47	54.7
Moderate 20 – 50	31	36
Mild 51- 150	8	9.3
Normal >150	0	0
Total	86	100

Mean= 22.1 x 10^3/l. Median = 16 x 10^3/l. Std. Deviation = 19.9 x 10^3/l. Minimum=1 x 10^3/l. Maximum=93 x 10^3/l

Table-14: Peripheral blood smear

Peripheral blood smear	No.	%
Normocytic normochromic	24	27.9
Not done	22	25.5
Normal	12	14
Microcytic hypochromic	26	25.5
Atypical lymphocyte with decrease plat	1	1.2
Normocytic hypochromic	1	1.2
Total	86	100

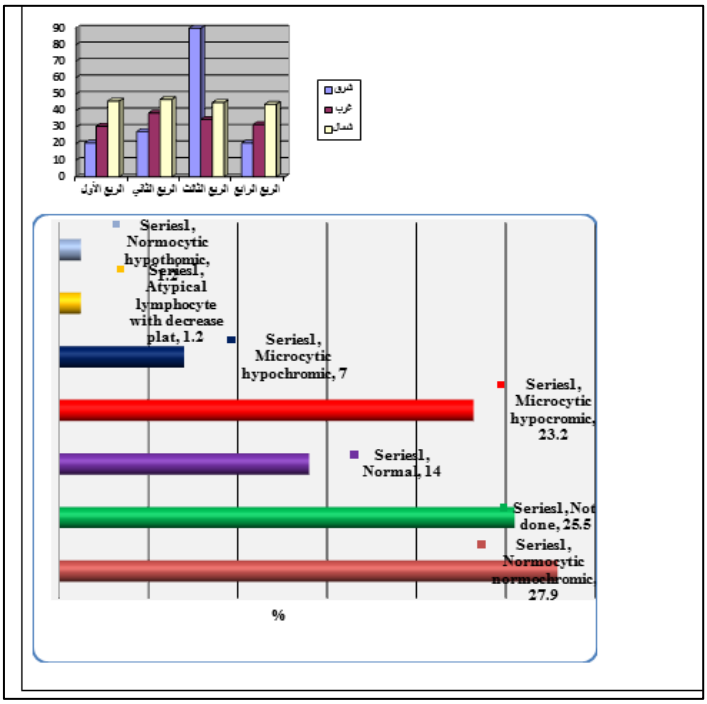

Fig-14: Peripheral blood smear

Table-15: Bone marrow results

Bone marrow results	No.	%
Normal	59	68.5
Not done	24	27.9
Thrombocytopenia	1	1.2
Aplastic anemia	1	1.2
Increase megakaryocytic	1	1.2
Total	86	100

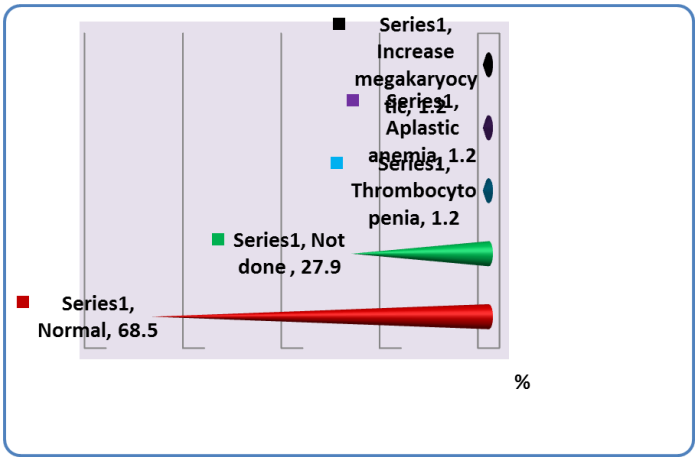

Fig-15: Bone marrow results

Coagulation profile

Table-16: Prothrombin time

Prothrombin time(PT)/second	No.	%
<13	4	4.7
13-15	65	75.6
>15	17	19.7
Total	86	100

Mean= 16.9. Median =14 second. Std. Deviation = 7.4 second Minimum=2 second. Maximum=38 second.

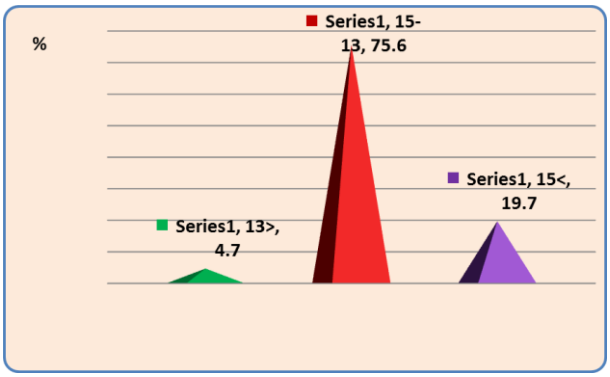

Fig-16: Prothrombin time

Table-17: Partial thromboplastin time with kaolin

Partial thromboplastin time with kaolin/second (PTTK)	No.	%
<39	25	29
39-45	60	69.8
>45	1	1 .2
Total	86	100

Mean=36.4 second. Median =39 second. Std. Deviation =8.4 second. Minimum= 2second. Maximum= 47seond.

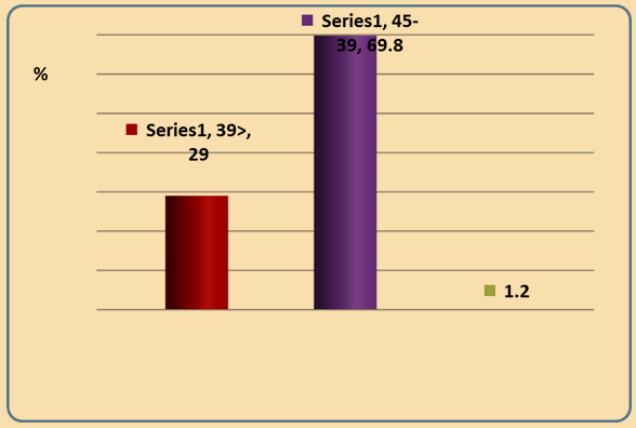

Fig-17: Partial thromboplastin time with kaolin

Table-18: Bleeding time

Bleeding time /Second	No.	%
<5	85	98.8
≥5	1	1.2
Total	86	100

Mean= 6.2/Second. Median =1. Std/Second. Deviation =12.3/Second. Minimum=1/Second. Maximum=31.2/Second

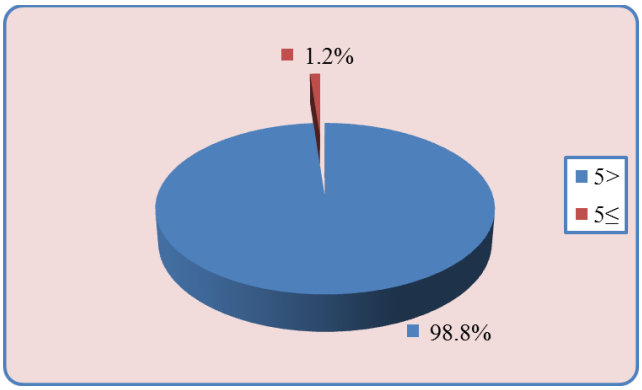

Fig-18: Bleeding time

Liver function tests

Table-19: GOT level

GOT level / mg/dl	No.	%
<45	84	97.7
≥45	2	2.3
Total	86	100

Mean=25.2 / mg/dl. Median =24 / mg/dl. Std. Deviation =9.9 / mg/dl Minimum=8.5 / mg/dl. Maximum=68 / mg/dl.

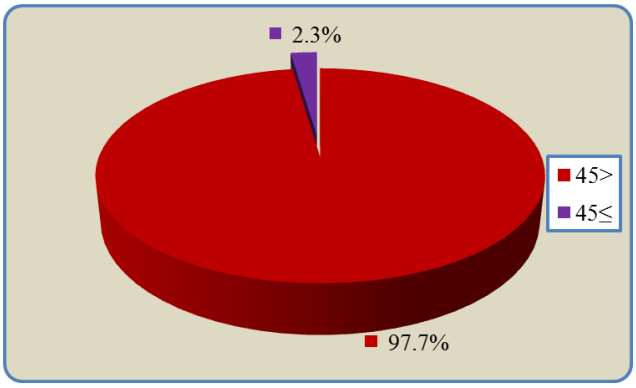

Fig-19: GOT level

Table-20: GPT level

GPT level / mg/dl	No.	%
8-17	26	30.2
18-27	38	44.2
28-37	17	19.8
>37	5	5.8
Total	86	100

Mean= 22.9 mg/dl. Median = 20 mg/dl. Std. Deviation = 12.3 mg/dl. Minimum= 8.3 mg/dl. Maximum=92 mg/dl.

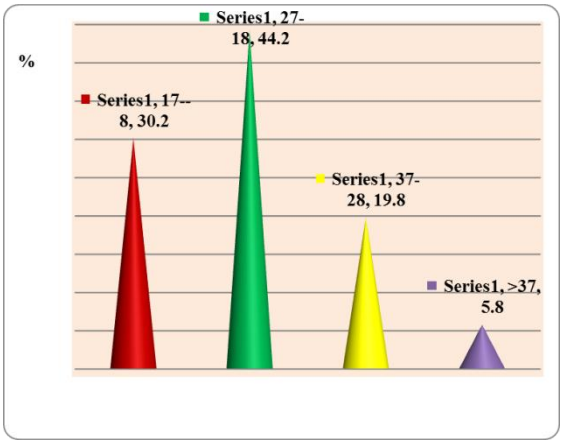

Fig-20: GPT level

Renal function tests

Table-21: Urea level

Urea level	No.	%
<8	2	2.3
8- 21	53	61.6
>21	31	36
Total	86	100

Mean=21.3. Median =20.1. Std. Deviation =7.5. Minimum=3. Maximum=42.

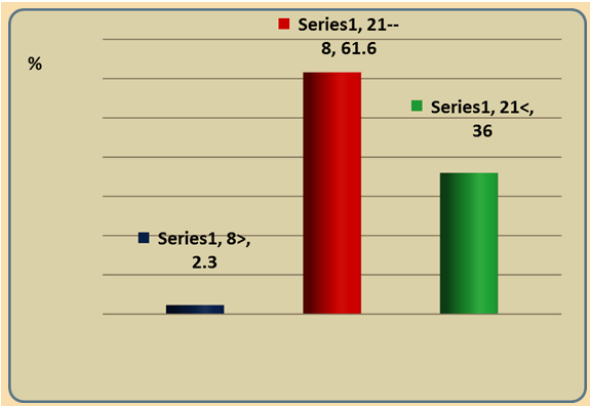

Fig-21: Urea level

Table-22: Creatinine level

Creatinine level/ mg/dl	No.	%
<0.8	67	77.9
0.8 – 1.3	19	22.1
Total	86	100

Mean= 0.27 mg/dl. Median =0.22 mg/dl. Std. Deviation =0.12 mg/dl. Minimum=0.10 mg/dl. Maximum=0.80 mg/dl.

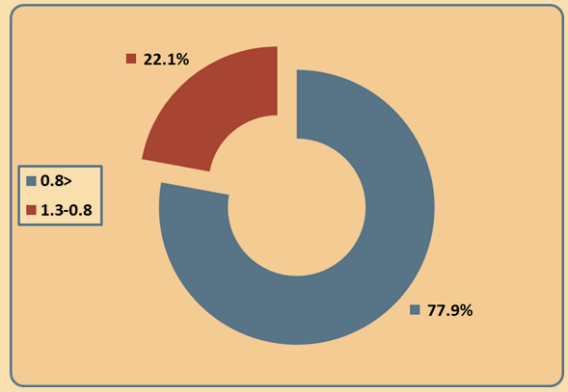

Fig-22: Creatinine level

Table 23: U.S.S. abdomen

U.S.S. abdomen	No.	%
Normal	84	97.7
Splenomegaly	2	2.3
Total	86	100

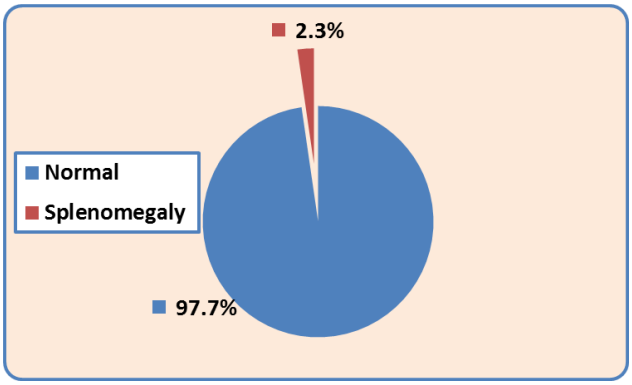

Fig-23: U.S.S. abdomen

Table-24: Type of treatment

Type of treatment	No.	%
Steroid	21	24.4
Sand globulin	41	47.6
Both	12	14
No treatment	12	14
Total	86	100

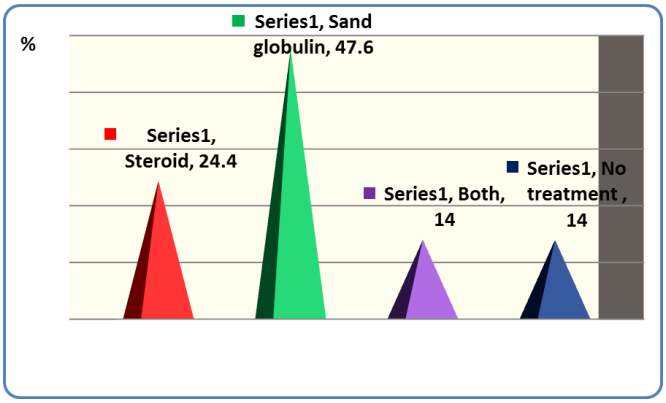

Fig-24: Type of treatment

Table-25: Response to treatment

Response to treatment	No.	%
Yes	71	95.9
No	3	4.1
Total	74	100

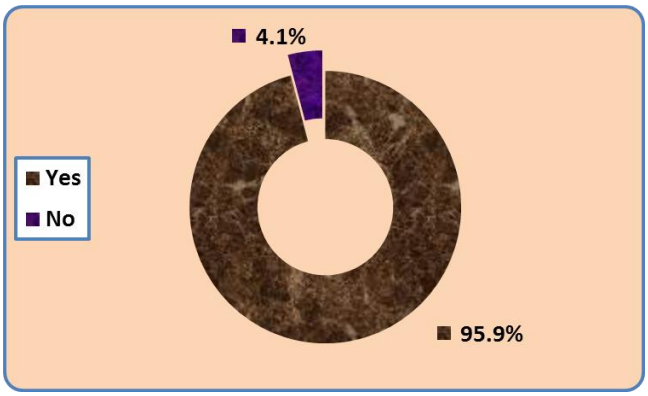

Fig-25: Response to treatment

Table-26: Complication spienomegly???

Complication	No.	%
Recurrent(chronic)	32	37.2
Free(No recurrence)	54	62.8
Total	86	100

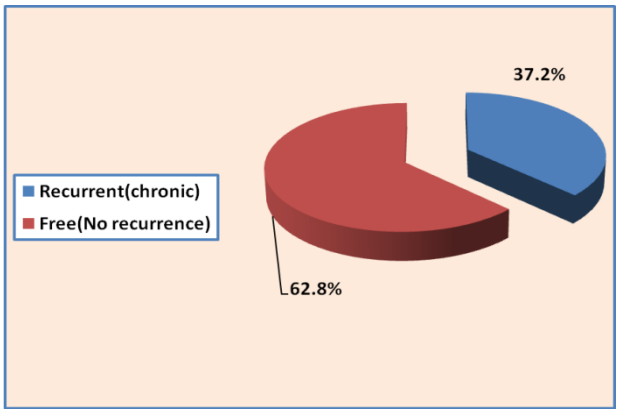

Fig-26: Complication

DISCUSSION

The study included 86 patients their mean age was 4.2±2.7years,with minimum age 11months and maximum age 12years, more than half (61.6%) of the patients their age was in age group 1-4years, 19.1% in age group 5-8 years, and only 1.2% their age was in age group <1years. In other study the mean age of children in the study group was 7.9 years (2-12 years) [1]. Also in similar study mean age was 5.85 years; age ranged from 1 month-17 years) [2]. Male to female ratio was 1:1.15, female constitute to more than half (53.5%) and 46.5% were males. In other study 49% were male and 51% were female [2]. Majority (98.8%) of patient were Libyan. Around quarter (25.6%) of patients were from outside Benghazi, and 74.4% from Benghazi.Mean duration of hospital stay was 5.2± 4.3 days , minimum duration was one day and maximum was 23 days. Majority of patients (79%) stay ≤7days and 21% stay >7 days. Bruise was presented by 84.9% of patients, 67.4% was presented by history of upper respiratory tract infection and 30.2% presented with bleeding from different site. Jelena Roganović mentioned ITP in children typically presents with the sudden onset of a purpura or bruising in an otherwise healthy child [4]. Repeated admission was recorded in 93% of the patients and 7% of them was the first attack. In other study the result was that among the studied children (50), 62% were diagnosed with acute ITP and 38% with chronic ITP [3]. Family history of ITP was recorded in 4.7%, two of them were their brothers and two their cousins. Others mentioned that genetic predisposition to ITP likely plays a role in susceptibility to developing ITP in specific conditions. This finding is supported by rare reports of familial ITP, increased frequency of ITP in some genetic syndromes (common variable

immunodeficiency, autoimmune lymphoproliferative syndrome, and hyper IgM syndrome), and evidence of an association between ITP and several candidate immune genes [7]. In general examination of the patients, Petchia was present in 74.4%, bruising in 2%, Purpuric in 8.1%, black eye 4.7%, shock in 1.2% and pallor in 95.3%. Jelena Roganović mentioned that approximately 60% of children with ITP have only skin bleeding at presentation that include petechial or purpuric rash or bruising, also referred to as "dry purpura". Mucosal bleeding ("wet purpura") may be present in as many as 40% of children with ITP [4]. Respiratory manifestation was present in 4.8%, CNS manifestation present in 2.4%, hepatospleenomegaly in 2.4%, Lymphoadnopathy in 2.4%, renal manifestation in 1.2% and musculoskeletal manifestation in 1.2%. Labarque V. recorded that in almost two thirds of pediatric patients, there is a history of a prior viral infection, mainly an upper respiratory tract infection.[5]WBC count was >4 in 1.2%, 4-11 in 73.3% and 25.5% had level > 11 $x10^3$/ml, mean level was 9.7± 3.4 $x10^3$/ ml, minimum value was 2.7 and maximum value was 20 $x10^3$/ml. `Hemoglobin level was ranged from 3.8 to 14.3g/dl , with mean 10.9± 1.8g/dl, 64% had Hemoglobin level between 11-14 g/dl and 32.5% of patients between 7-10g/dl. In other study blood loss was sever enough to cause an anemia with hemoglobin levelof less than 10g. Per 100ml in 20.5% [4]. Sever decrease of platelets was recorded in 54.7% of the patients , 36% had moderate decrease , mild recorded in 9.3% and no one had normal count. Same result was recorded in other study no one had normal level of platelet at presentation [1].

Also in similar study found that the mean platelet count was 19k (0-120k) [2]. Also result of other study show that 68% of the children with ITP showed a platelet count below $20x10^9$/L at the time of presentation [3]. Peripheral blood smear, 26.7% of patients had ncnc, 23.2% was mchc, 4.7% had mcnh 2.3% of them had Microcytic hypochromic, 1.2% had Atypical lymphocyte with decrease plat, 1.2% had Normocytic hypothomic, 14% were normal and 15.5% not done. Jelena Roganović mentioned that the blood smear shows normal morphology of all cell lines with platelets either normal in size or variably sized with some large platelets [4]. Bone marrow was normal in 68.5% of the patients, 1.2% of patients had thrombocytopenia, 1.2% of them had aplastic anemia, 1.2% of them had increase megakaryocytic and in 27.9% bone marrow not done . In other study found that Bone marrow aspiration (BMA) was performed in 72% but altered the diagnosis or therapy in no patient [2]. While others adviced that the bone marrow examination is not routinely performed in children with typical ITP. According to the American Society of Hematology (ASH) guidelines, it is not necessary in children with typical features of ITP and in those who fail to respond intravenous immunoglobulin (IVIG) [6]. Prothrombin time/ second was < 13second in 4.7% of patients, 13-15 second in 75.6% of them and >15 second in 19.7%. Mean Prothrombin time was 16.9± 7.4 second with minimum time 2 second and maximum 38 second .Partial thromboplastin time with kaolin was < 39second in 29% of patients, 69.8% of them had time between 39-45 second and 1.2% the time was >45 second. Mean PTTK/second was 36.4 ±8.4second, with minimum time 2 second and maximum 47 second Bleeding time was<5 second was recorded in 98.8% of patients and ≥5 second in 1.2% of patients. Mean bleeding time was 6.2 ± 12.3/second, with minimum time 1second and maximum 31.2 second. GPT level was <45mg/dl in 97.7% of patients and ≥45mg/dl in 2.3% of patients, mean level was 25.2 ± 9.9 mg/dl and ranged between 8.5 mg/dl and 68 mg/dl. GPT level was 8-17mg/dl in 30.2% of patients, 18-27 mg/dl in 44.2%, 28-37 mg/dl n 19.8% of patients and >37 mg/d in 5.8% of them. Mean GPT level was 22.9 ±12.3 mg/dl and ranged from 8.3mg/dl to 92 mg/dl. Mean level of urea was 21.3 ± 7.5 and ranged from 3 to 42, 61.6% of patients had urea level between 8-21, 36% of them had urea level >21 and 2.3% of patients were <8.Majority of patients(77.9%) had creatinine level <0.8mg/dl and 22.1% of patients had creatinine level between 0.8- 1.3 mg/dl .Mean level of creatinine level was 0.27± 0.12mg/dl, minimum level was 0.10mg/dl and maximum was 0.80mg/dl.U.S.S. abdomen was normal in majority (97.7%)of patients only 2.3% had splenomegaly . Steroid was the drug of choice to 24.4%, sand globulin was the treatment to 47.6% of patients and 14% treated by both drugs, while 14% not receive any treatment. In similar study treatment consisted of corticosteroids in 256 (92% response) [2]. In similar study done in Qatar most of the studied children were treated with intravenous immunoglobulin (74%) [3]. Response to treatment was recorded in 95.9%.

Complication was recorded in 37.2% of patients, were become recurrent attack (chronic) and 62.8% had no recurrence. Jelena Roganović mentioned that Children with ITP have an excellent chance of recovery with or without treatment. Typically, bleeding signs subside within weeks, and the platelet count returns to normal in a few weeks to months. Overall, 70% to 80% of children diagnosed with ITP will go into complete remission within a few months [4].

CONCLUSION

Concluded from this study that the male to female ratio was 1:1.15.Patients were presented mostly with bruises, upper respiratory tract infection or bleeding from different site. Family history of ITP was recorded in 4.7%of the patients. Response to treatment was recorded in 95.9%. Complication was recorded in 37.2% of patients, were become recurrent attack.

RECOMMENDATION

There is an obvious need for prospective studies and randomized controlled trials to give more details about ITP.

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