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ORIGINAL ARTICLE

Psychiatric Disorders and Quality of Life in Egyptian Patients with Chronic Immune Thrombocytopenic Purpura: A Single Center Study

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Abstract The impact of chronic immune thrombocytopenic purpura (ITP) on the psychological health and quality of life is evident among children and adolescents. We aimed to describe psychological disorders and assess quality of life in children with chronic ITP and compared their results with their healthy peers. A cross-sectional comparative study was carried out in a tertiary care university-affiliated hospital during a period from November, 2015 till April, 2018. We enrolled 119 children with chronic ITP and compared with 220 healthy peers. Relevant demographic and clinical data were collected and statistically analyzed. Quality of life for both patients and control groups was measured using pediatric quality of life inventory version 4 (Arabic one). Also psychiatric evaluation of both groups was done using Arabic version of Mini-International Neuropsychiatric Interview for Children (Mini-KID). Majority of patients (90.7%) exhibited mucocutaneous bleeding. Most of patients (61.3%) did not need any definitive treatment for chronic ITP while 38.6% received second line therapy. About one-third of the patients needed rescue medications to control active bleeding. The scores of all sub-scales of Peds QL 4.0 were significantly decreased among patients group when compared to their healthy peers ($P < 0.001$). General anxiety disorder and oppositional defiant disorders were the commonest psychiatric disorders among children with chronic ITP. Quality of life in children with chronic ITP is markedly impaired with occurrence of a variable spectrum of psychiatric disorders among the studied patients.

Keywords Children · Psychiatry · Quality of life · Immune thrombocytopenic purpura

Abbreviations

ITP	Immune thrombocytopenic purpura
QoL	Quality of life
HRQOL	Health-related quality of life
IQ	Intelligence quotient
PedsQL4.0	Pediatric quality of life inventory version 4

Introduction

Immune thrombocytopenic purpura (ITP) is a common cause of acquired bleeding among children [1]. It is characterized by low platelet count due to suppression of platelet production and premature platelet destruction by self-

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reacting antibodies [2, 3]. It is manifested clinically by bleeding manifestations in absence of other causes of thrombocytopenia [3]. Theses manifestations include mucosal bleeding, spontaneous bruising, ecchymosis and orificial bleeding. Its presentation could be severe in the form of fatal external bleeding or intracranial hemorrhage [4, 5].

The course of the disease in children is quietly different from adults. While the majority of adult cases tend to have a chronic course, a small proportion of the pediatric cases pass to chronicity [6]. In pediatric age group, the course of chronic ITP is mostly quiescent with the chance of spontaneous resolution within 12–24 months [7]. However, 5–10% of chronic ITP children experience serious bleeding [8].

The psychological status may be influenced during the course of the disease because of the diseases itself or its medications with development of many psychiatric disorders, commonly depression and anxiety [9].

Studies concerning quality of life (QoL) have attracted an increased level of interest over the last few decades. There are several definitions for QoL [10]. Among these definitions, WHO defines QoL as 'the individuals' perception of their position in life in the context of culture and value systems in which they live and in relation to their goals, expectations, standards, and concerns' [11]. Studies to date have revealed conflicting results regarding health-related quality of life (HRQOL) in children with ITP [8, 12, 13]. In our study, we described psychiatric disorders and QoL of chronic ITP children and compared their results with their healthy peers aiming for better integrated management of this chronic disease and to assess QoL in this important sector of chronic patients.

Materials and Methods

This is a cross-sectional comparative study conducted during the period from November, 2015 till Aprill, 2018. We enrolled 119 chronic ITP patients in the study; 55 males and 64 females. Their ages ranged from 8 to 18 years old. All patients were registered in a tertiary care university-affiliated hospital and were not suffering from any other medical problem or mental deficits (IQ < 70). The platelet level used to define ITP was below 100×10^9/L. The patient was considered to be chronic if thrombocytopenia was persistent more than 12 months from the first observation. These standard definitions were followed according to International Working Group of recognized expert clinicians [14]. The control group was randomly chosen from the nearby clubs and schools and included 220 subjects. They were apparently healthy and were free from any chronic diseases.

Demographic and clinical data were collected from patients' sheets including (age, sex, residence, clinical presentations and lines of treatment). Reviewing patients' records was carried out during working hours (8:30 am–1:30 pm) and under the supervision of data managers. QoL for both patients and control groups was measured using pediatric quality of life inventory version 4 (PedsQL 4.0) (Arabic one) [15] which is child self-report measured in children ages 8–18 years. It consists of four subscales of the PedsQL 4.0 Generic Core Scales: physical functioning (8 items), emotional functioning (5 items), social functioning (5 items), and school functioning (5 items). Also psychiatric evaluation of both groups was done by a psychiatric consultant using Arabic version of Mini-International Neuropsychiatric Interview for Children (Mini-KID) to assess the presence of any psychiatric disorder in children [16, 17].

Statistical Analysis

Data were analyzed using SPSS program version 23 (SPSS Incl., Chicago, IL, USA). Qualitative variables were presented as number and percent. Chi square test was used for comparison between the two groups. Quantitative variables were test for normality by Kolmogorov–Smirnov test and found to be non-parametric in distribution. They were presented as median (minimum–maximum) and Mann–Whitney test was used for comparison between the two groups. $P < 0.05$ was considered statistically significant.

Results

Table 1 demonstrated the demographic data of both the patient and control groups. Both groups were homogenous regarding the age, sex and residence ($P = 0.7$, 0.3 and 0.97 respectively).

Majority of patients (90.7%) exhibited mucocutaneous bleeding (purpura and ecchymosis). Splenomegaly was found in 13 patients (10.9%). Anemia was associated in 71 patients (59.7%). Most of patients (61.3%) did not need any definitive treatment for chronic ITP while 46 patients (38.6%) received second line therapy (27 patients (22.6%) received high dose dexamethasone, 14 patients (11.7%) received anti CD20 and 5 patients (4.2%) received thrombopoeitin receptor agonists). About one-third of the patients needed rescue medications (intravenous immunoglobulin, methyleprednisolone or Anti Rh D) to control active bleeding (Table 2). Splenectomy was done for only 4 patients (3.4%).

The scores of all sub-scales of Peds QL 4.0 (Health, emotional, social and school QoL) were significantly

Table 1 Comparison between healthy control and patients cases regarding demographic data

	Control group n (%)	Patients group n (%)	Significance
Age (mean ± SD)	8.1 ± 2.4	8.2 ± 2.0	$t = 0.3$, $P = 0.7$
Sex			
Male	90 (40.9)	55 (46.2)	$\chi^2 = 0.9$, $P = 0.3$
Female	130 (59.1)	64 (53.8)	
Residence			
Urban	55 (25.0)	30 (25.2)	$\chi^2 = 0.002$, $P = 0.97$
Rural	165 (75.0)	89 (74.8)	

Table 2 Clinical features of chronic ITP patients

Clinical features	Number (%)
Clinical manifestations: no bleeding manifestations	6 (5)
Mucocutaneous bleeding	108 (90.7)
Orificial bleeding	5 (4.2)
Splenomegaly	13 (10.9)
Anemia	71 (59.7)
Treatment: no definitive therapy	73 (61.3)
Second line therapy: total	46 (38.6)
High dose dexamethazone	27 (22.6)
Rituximab (Anti CD20)	14 (11.7)
Thrombopoeitin receptor agonists	5 (4.2)
Rescue therapy during active bleeding	41 (34.5)
Splenectomy	4 (3.4)

ITP immune thrombocytopenic purpura

Table 3 Comparison between patients and healthy controls regarding QoL

QoL subscales	Control group median (min–max)	Patients group median (min–max)	Significance
Health QoL	675 (300–750)	300 (50–700)	$Z = 14.4$, $P < 0.001$
Emotion QoL	450 (150–475)	150 (25–300)	$Z = 14.8$, $P < 0.001$
Social QoL	350 (100–450)	125 (25–250)	$Z = 13.3$, $P < 0.001$
School QoL	225 (125–450)	125 (25–225)	$Z = 13.7$, $P < 0.001$

QoL quality of life

decreased among patients group when compared to their healthy peers as shown in Table 3 ($P < 0.001$).

None of the control group showed psychiatric disorders. Table 4 showed the different psychiatric disorders among the studied chronic ITP patients. They were distributed as follow: 10 patients (8.4%) major depressive disorder, 4 patients (3.4%) suicidal attempts, 5 patients (4.2%) dysthymia, 13 patients (10.9%) panic disorder, 11 patients (9.2%) separation anxiety disorders, 9 patients (7.6%) specific phobia, 9 patients (7.6%) obsessive compulsive disorders, 13 patients (10.9%) conduct disorders, 22 patients (18.5%) oppositional defiant disorders, 22 patients (18.5%) general anxiety disorder and none of the patients experienced any psychotic disorders.

Table 4 Psychiatric disorders among chronic ITP patients

Psychiatric disorders	ITP patients (total = 119) *N* (%)[a]
Major depressive disorder	10 (8.4)
Suicidal attempts	4 (3.4)
Dysthymia	5 (4.2)
Panic disorder	13 (10.9)
Separation anxiety disorder	11 (9.2)
Specific phobia	9 (7.6)
Obsessive compulsive disorders	9 (7.6)
Conduct disorders	13 (10.9)
Oppositional defiant disorders	22 (18.5)
General anxiety disorder	22 (18.5)
Psychotic disorders	0

Only 4 children reported no psychiatric disorders. No psychiatric disorders were diagnosed among the control group

ITP immune thrombocytopenic purpura

[a]Categories are not mutually exclusive

Discussion

In the current study, we described the psychiatric problems among chronic ITP children and to what extent their QoL is affected by their illness compared to their healthy peers.

In our study, the mean age was higher than the previously reported median age at initial diagnosis of ITP which was 4–6 years old [18, 19]. Also, females were more affected than males. Perhaps this is because those females are more likely to lead a chronic course than males as noted

by a previous study [20]. Furthermore, the incidence of ITP is higher among females than males in older ages [6].

The majority of bleeding manifestations among our patients were limited to cutaneous bleeding (90.7%) while only 5% of the patients experienced orificial bleeding. This is consistent with the previously published data about the difference between adult and pediatric chronic ITP regarding the clinical severity as the latter has less severe course and hence most of the patients do not suffer from major bleeding manifestations [21].

Although ITP in children in most of cases is known to be self- limiting disease with little morbidity and mortality [8, 22], chronic disease may greatly affect different child's life activities. In the current study all aspects of patients' QoL were significantly impaired when compared to their healthy peers. The fear from unexpected severe bleeding episodes together with an unpredictable course of the disease may be the underlying factors behind poor quality of their lives. Moreover, a large number of the patients with chronic ITP are teenagers and adolescents with better understanding of the magnitude and the nature of their disease. Also they may prefer to contribute to sport activities which may be limited or even prohibited by their illness. This is consistent with Zhang et al. [23] who found that QoL of chronic ITP patients were impaired using two types of HRQoL Questionnaires (Ped QoL inventory version 4.0) in addition to Kids' ITP Tools (KIT).

Also Mathias et al. [24] extensively reviewed the published literatures concerning with QoL in adult chronic ITP patients using Patient–Assessment Questionnaire (ITP-PAQ) and reported that ITP affect QoL in different domains with the key areas affected are: work life, functional and emotional health, leisure and social activities, and reproductive health. Our results, apart from reproductive health domain, go hand in hand with this study.

Our patients experienced different psychiatric problems ranging from separation anxiety disorders and specific phobia to major depressive disorder and suicidal attempts. Such disorders may be related to chronic course of the disease itself limiting their activities. Also corticosteroids which are commonly used during ITP treatment course may play a role in this concern because of abnormal weight gain, change of body configuration, the psychiatric side effects and sleep disorders frequently described with their prolonged use [25]. Also children were found to be more concerned with their appearance and restrictions of their lifestyle than adult. [26] Another possible explanation for the psychiatric disturbance among children with ITP is thrombocytopenia itself especially when knowing the important role of platelets in the transport of serotonin; an important neurotransmitter affecting mood regulation [27].

Physicians should understand the psychological background of a child with chronic ITP. They should assure patients and their families through emphasizing upon the benign course of the disease and the presence of chance for spontaneous remission even after years [21]. Also patients who are candidate to receive second line therapy should be precisely selected and thus unnecessary treatment together with undesirable side effects can be avoided [28].

Conclusion

Although chronic ITP is a benign disease with an indolent course, it may result in emergence of psychiatric troubles as well as impairment of children's QoL. Psychiatric assessment using Mini-International Neuropsychiatric Interview for Children and QoL evaluation using pediatric quality of life inventory version 4 (PedsQL 4.0) should be added as an important part of the multidisciplinary management for chronic ITP patients in order to decrease these effects.

Study limitation: This is a single center study on limited number of ITP children so its results cannot be generalized. Also the small sample size does not allow for studying the factors associated with psychiatric disorders. Furthermore, only four children with ITP reported no psychiatric disorders. So it is un-logic to compare those with versus those without psychiatric disorders.

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Compliance with Ethical Standards

Conflict of interest Authors declare that they have no conflict of interest.

Ethical Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed Consent Informed consent was obtained from all individual participants included in the study.

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