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Research Article

Illness Perceptions and Response to Treatment with Romiplostim in Iraqi Patients with Refractory Immune Thrombocytopenia Purpura: A Cross-Sectional Study

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Abstract

Background: Immune thrombocytopenia is an immune-related disorder that causes an impairment in platelet production and stimulates platelet destruction, causing variable bleeding symptoms. ***Objective***: This study focuses on refractory immune thrombocytopenic purpura patients on romiplostim treatment and their level of illness perception related to treatment response. ***Method***: A cross-sectional study was conducted from May 1st, 2025, to August 1st, 2025. Brief Illness Perception Questionnaires were administered to 84 patients with ITP to collect the data. The study took place at the Hematology and Bone Marrow Transplant Center, Medical City, Baghdad, Iraq. ***Results***: The romiplostim response rate is 21 (25.0%), while the partial response rate is 41 (48.8%). The most frequent complaints were bleeding, 46 (54.8%), and joint pain, 30 (35.7%). In terms of illness perceptions, treatment control had the greatest mean score (6.9±2.85), and understanding had the lowest mean score (4.2±4.6). ***Conclusions***: Romiplostim showed effective management among Iraqi patients, and the patients believe in its effectiveness. A low level of patient understanding was shown among the participants; education programs and patient counseling are required to increase health literacy among patients with immune thrombocytopenic purpura.

Keywords: Immune thrombocytopenic purpura, Illness perception, Romiplostim.

تصورات المرض والاستجابة للعلاج بالروميبلوستيم لدى المرضى العراقيين المصابين بقلة الصفيحات المناعية المقاومة للعلاج: دراسة مقطعية

الخلاصة

الخلفية: قلة الصفيحات المناعية هي اضطراب مرتبط بالمناعة يسبب ضعفا في إنتاج الصفائح الدموية ويحفز تدمير الصفائح الدموية، مما يسبب أعراض نزيف متغيرة. **الهدف**: تركز هذه الدراسة على مرضى نقص الصفيحات المناعي المقاوم في علاج الروميبلوستيم ومستوى إدراكهم للمرض المرتبط بالاستجابة للعلاج. **الطرائق**: أجريت دراسة مقطعية في الفترة من 1 مايو 2025 إلى 1 أغسطس 2025. تم إجراء استبيانات موجزة حول إدراك المرض ل 84 مريضا يعانون من ITP لجمع البيانات. أجريت الدراسة في مركز أمراض الدم وزراعة نخاع العظم، مدينة الطب، بغداد، العراق. **النتائج**: معدل استجابة الروميبلوستيم هو 21 (25.0٪) ، بينما معدل الاستجابة الجزئية هو 41 (48.8٪). كانت الشكاوى الأكثر شيوعا هي النزيف ، 46 (54.8٪) ، وآلام المفاصل ، 30 (35.7٪). من حيث تصورات المرض، كان للتحكم في العلاج أكبر متوسط درجة (6.9±2.85) ، وكان الفهم أقل متوسط درجة (4.2±4.6). **الاستنتاجات**: تبين ان روميبلوستيم علاجا فعالا بين المرضى العراقيين، ويؤمن المرضى بفعاليته. تم إظهار مستوى منخفض من فهم المريض بين المشاركين. هناك حاجة إلى برامج تعليمية واستشارات المرضى لزيادة محو الأمية الصحية بين المرضى الذين يعانون من نقص الصفيحات المناعية.

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INTRODUCTION

Immune thrombocytopenia (ITP) is an immune-related disorder that causes an impairment in platelet production and stimulates platelet destruction, causing a state with variable bleeding symptoms [1]. Its incidence is about 3.3/100,000 adults per year, with a prevalence of 9.5 per 100,000 adults [2]. It is thought to be a complicated imbalance state of the immune system, caused by autoantibody-mediated platelet destruction [3]. Previous research suggests the participation of multiple processes represented by T-cell-mediated effects [4–8]. Other investigations found that the CD40 gene polymorphism had a substantial impact on both cellular immune responses (e.g., T cells) and humoral immunological responses (B cell lymphocytes) in ITP patients treated with romiplostim [9]. CD40 is critical for modulating immunological responses, and its polymorphisms can increase disease susceptibility [10,11]. The standard first-line treatment for newly diagnosed patients is corticosteroids [12]. They help to reduce platelet clearance, increase platelet synthesis, and may reduce bleeding by acting directly on blood arteries [13,14]. However, in the long term, their negative impacts exceed the positive. This promotes the availability of innovative treatments [15]. The use of intravenous immune globulins (IVIGs) in ITP is also well-established [16]. They inhibit the phagocytosis of

antibody-coated platelets and generally achieve this via a rapid but short-lived increase in platelet count [17]. They are generally used as a first line in patients requiring a very rapid increase in platelet count or in combination with corticosteroids [18]. Eltrombopag, romiplostim, and avatrombopag are thrombopoietin receptor agonists (TPO-RA); the latter was approved in 2019. They are similar to the physiological activity of thrombopoietin and are indicated in conditions of insufficient response to previous treatment [19-21]. They minimize the bleeding tendency by maintaining the platelet count above a safe level. Notably, the safe level for platelet counts varies among patients depending on individualized bleeding risks [22]. The disease's consequences and cognitive ability may play an essential role in determining perceptions of the disease [23]. Illness perception depends on societal influences, personal experience, and interactions with healthcare providers. The patient's perspective of their illness is important in determining how and when they seek medical help [24]. This study focuses on patients with refractory ITP receiving romiplostim therapy and aims to determine the level of illness perception and its relationship with treatment response.

METHODS

Study Design and Setting

A descriptive cross-sectional design was carried out from May 1st, 2025, to August 1st, 2025, to measure romiplostim treatment response and illness perception among patients with ITP in the Hematology and Bone Marrow Transplant Center, Medical City, Baghdad, Iraq.

Sample selection and procedure

The study involved 84 ITP patients, who were selected according to the diagnostic criteria of the Iraqi hematologists consensus [25]. Inclusion criteria include persistent/chronic ITP patients, age above 14 years, and adherent patients on romiplostim, while exclusion criteria include age below 14 years, pregnant women, and chronic illnesses like type 1 DM, IHD, chronic infection, and autoimmune disease.

Data collection and outcome measurements

In the study, eighty-four patients who have refractory ITP and are on romiplostim were recruited and categorized into three groups: response, partial response, and non-response. Following the administration of romiplostim, the platelet count was used to diagnose and categorize all patients. The treatment response was assessed by examining the platelet count and the percentage of patients who were able to reduce or discontinue concurrent ITP therapies. The definition of a complete response is a platelet count after treatment >100 × 109/L. Partial response is defined as a platelet count between 30 and 100 × 109/L, and non-response is less than 30 × 109/L. [26,27], other sources estimate a response rate of 50–200 × 109/L [28]. The response criteria of treatment were to reach a safe platelet count that was sustained for at least 4 weeks without the use of rescue medications, such as before IVIG or anti-D immunoglobulin. Patients who succeeded in reaching this target were considered "responders," while those who did not after 4 successive weeks of maximum dose were called "non-responders" [28]. The initial starting dose of romiplostim is adjusted and increased weekly based on the patient's platelet count and bleeding status [25]. Anemia is typically characterized by hemoglobin concentrations, with a diagnostic threshold of less than 13 g/dL (130 g/L) for men and less than 12 g/dL (120 g/L) for women [29]. Adverse events were classified in accordance with the Common Terminology Criteria for Adverse Events (CTCAE) Version 5 [30]. All databases were collected using a direct questionnaire data sheet, which included demographic data (age, sex), hematologic parameter changes, and side effects such as drug allergy, fever, arthralgia, dizziness, nausea, headaches, and bleeding. The Arabic version of the Brief Illness Perception Questionnaire (Brief-IPQ) was self-administered to the patient to be filled out.

Measurement tools

The "Brief Illness Perception Questionnaire" (Brief-IPQ) was designed in 2006 [31]. It allows the measurement of perceptions of the disease. It consists of 9 items. Five items assess emotional illness representations: consequences (item 1), timeline (item 2), identity (item 5), concern (item 6), and emotions (item 8). Three items assess cognitive illness representations: personal control (item 3), treatment control (item 4), and understanding (item 7). The last item (Item 9) was an open-ended question, requiring the patients to list the three most important causal factors underlying their condition. The Arabic version of the Brief-IPQ was utilized in this study. The reported Cronbach's alpha was 0.717 [32].

Ethical considerations

The study was approved by the University of Baghdad-College of Pharmacy Research Ethics Committee with approval number (RECO62447H). All patients gave informed consent and participated voluntarily.

Statistical analysis

Statistical analysis was performed using Statistical Package for the Social Sciences (SPSS) version 24. Continuous variables were presented as mean ± standard

deviation (SD). Categorical variables were represented as numbers and percentages. Non-parametric tests were utilized to show the associations between sociodemographic and clinical characteristics of the participants and illness perceptions (Mann-Whitney U test for 2 groups and Kruskal-Wallis for more than 2 groups). Data were considered statistically significant when $p< 0.05$.

RESULTS

Table 1 delineates the features of the participating patients. Among the 84 ITP patients recruited for this study, the majority were under the age of fifty, with 67 participants (79.8%) being female, resulting in a female-to-male ratio of approximately 4:1. Six patients (7.1%) had a positive family history of ITP, and four patients (4.8%) had undergone splenectomy. Additionally, 40 patients (47.6%) presented with anemia, and romiplostim was administered as a second-line treatment in 59 cases (70.2%).

Table 1: Patient characteristics (n=84)

Variable	n(%)
Age	
<20	9(10.7)
20-29	17(20.2)
30-39	12(14.3)
40-49	18(21.4)
50-59	11(13.1)
60-69	9(10.7)
70-79	5(6)
80-89	3(3.6)
Sex	
Male	17(20.2)
Female	67(79.8)
Family history	
Yes	6(7.1)
No	78(92.9)
Splenectomy	
Yes	4(4.8)
No	80(95.2)
Anemia	
Yes	40(47.6)
No	49(52.4)
Romiplostim treatment	
First Line	22(26.2)
Second Line	59(70.2)
Third Line	3(3.3)

More than half of them have a partial response to romiplostim 41 (48.8%) with a mean dose of 116.25 mcg, and the disease duration for all participants was 3.5 to 5 years. Another source established a target platelet count for romiplostim at 50–200 × 10^9/L; thus, the medication response was also assessed in relation to these sources, yielding a response rate of 38 (45.23%). Half of the patients, 46 (54.8%), had bleeding, as shown in Table 2. Regarding drug side effects and disease consequences, patients with itching 2 (2.4%), fever 1 (1.2%), joint pain 30 (35.7%), dizziness 22 (26.2%), nausea 20 (23.8%), and headaches 29 (34%) are shown in Table 3.

Table 2: Romiplostim treatment response in ITP patients (n=84)

Variable	Result
Romiplostim response n(%)	
No Response	22(26.2)
Partial Response	41(48.8)
Response	21 (25.0%)
Bleeding n(%)	
Yes	46(54.8)
No	38(45.2)
ITP Duration/month (mean)	
No Response	57.091
Partial Response	45.293
Response	45.429
Romiplostim dose (µg) (mean)	
No Response	161.3
Partial Response	116.25
Response	96.4

Table 3: Romiplostim side effects (n=84)

Variable	n(%)
Itching	
Yes	2(2.4)
No	82(97.6)
Fever	
Yes	1(1.2)
No	83(98.8)
Joint pain	
Yes	30(35.7)
No	54(64.3)
Dizziness	
Yes	22 (26.2)
No	62 (73.8)
Nausea	
Yes	20(23.8)
No	64(76.2)
Headaches	
Yes	29(34.5)
No	55(65.5)

Regarding the Brief IP score reported by the participants, the highest mean score was noted on treatment control (6.9±2.85), which indicates that participants believe that ITP could be controlled by treatment. Furthermore, the lowest mean score was noted on understanding (4.2±4.6), which reveals that most participants do not understand their illness (Table 4). The results indicated that platelet response, anemia, and age do not exhibit any significant correlation with any item of the BIPQ. However, both consequence and identity demonstrated a significant association with bleeding, with p-values of 0.001 for each. This suggests that patients experiencing bleeding perceive their condition as having a substantial impact on their lives and report significant symptoms related to their illness, as illustrated in Table 5. The last item (item 9) of illness perceptions requires the patients to list the three most important causal factors underlying their condition. About 38 (45.2%) of participants mentioned they do not know or have no idea. 25 (29.7%) believe its cause refers to psychological issues, 7 (8.3%) think that its initiation is stimulated after pregnancy, 8 (8.4%) think it's an immune-related disease, 7 (7.3%) adverse reactions to medication in use, 6 (6.3%) cases of flu or coronavirus,

2 (8.3%) hereditary cases, and 1 (1.05%) for various reasons, including smoking, type of food, fever, anemia, vitamin deficiencies, surgical procedures, and spleen disorder.

Table 4: Distribution of the responses for study sample among Brief Illness Perception Questionnaire (BIPQ)

BIPQ items	Emotional	BIPQ items
Consequences (How much does your illness affect your life?)	6.238±3.438	
Timeline (How long do you think your illness will continue?)	5.393±3.3	
Identity (How much do you experience symptoms from your illness?)	6.619±3.77	
Concern (How are you concerned about your illness?)	5.607±3.942	
Emotional response (How much does your illness affect you emotionally: Makes you angry, scared, upset or depressed?)	5.548±4.201	
Personal control (How much control do you feel you have over your illness?)		6.702±3.017
Treatment control (How much do you think your treatment can help your illness?)		6.917±2.859
Understanding (How well do you feel you understand your illness?)		4.226±4.616

Table 5: Associations between variables and Illness Perceptions (n=84)

BIPQ items	*p*-values			
	Platelet response	Age	Anemia	Bleeding
Consequence	0.07	0.881	0.263	0.001
Timeline	0.395	0.191	0.895	0.927
Personal control	0.993	0.755	0.751	0.213
Treatment control	0.448	0.279	0.781	0.377
Identity	0.265	0.589	0.163	0.001
Concern	0.516	0.604	0.226	0.134
Understanding	0.329	0.397	0.066	0.818
Emotional response	0.354	0.146	0.391	0.317

Non-parametric tests were utilized to compare means (Mann-Whitney U test for 2 groups and Kruskal-Wallis for more than 2 groups). Significant differences at $p< 0.05$.

DISCUSSION

This study involved 84 patients diagnosed with ITP. The majority of these patients were female, exhibiting a female-to-male ratio of approximately 4:1. This finding aligns with a study conducted in Wasit, which reported a percentage of 74% females and accounted for 26% males. In contrast, a study in Jordan indicated a ratio of about 3:1. More than half of the patients (70.2%) take romiplostim as second-line treatment; in general, TPO-RAs are likely to become the preferred second-line option because of the efficacy and favorable safety profile [35]. The most frequent complaint was bleeding and joint pain, nearly similar to another study conducted in Baghdad and Basrah [36]. Romiplostim symptoms occurred mainly on the day of taking the dose through the next 2 days and were mild-to-moderate and could be managed by simple medications. This study showed that romiplostim haseffective management among Iraqi patients, with a response rate equal to 21 (25.0%) and a partial response of 41 (48.8%). However, other studies depended on alternative sources that established the target platelet count for romiplostim as 50-200 x 10^9/L. Consequently, the drug's efficacy was reassessed based on these sources, resulting in a response rate of 38 (45.23%) [28]. In contrast to prior studies conducted in Iraq that indicated a response rate of 75%, the current study demonstrated a lower response rate compared to studies from Iraq, the United States, and the European Union, which recorded response rates of 87% and over 82%, respectively [37,38]. This may pertain to the temporary scarcity of romiplostim at the study sites, which resulted in the cessation of treatment for patients who had attained a platelet count exceeding 100×10^9/L, maintained with minimal doses (1–3 µg/kg) without necessitating adjustments over the prior 4 weeks, and were monitored weekly to recommence treatment as needed [36]. Medication shortage in the public hospitals was the main barrier facing physicians in implementing treatment guidelines [39]. Physicians from different specialties in Baghdad showed a tendency to prescribe lower than recommended doses for different reasons, among which is a shortage in the supply of the drug; however, they believed that this practice may disadvantage the patient due to concerns about efficacy and safety [40]. Regarding ITP consequences, about 46 (54.8%) patients are still suffering from bleeding, which is higher than the bleeding percentage in ITP Jordanian patients, 18 (21.6%); it may also be caused by a shortage of drugs [34]. In addition to that, 14 of the 22 non-responders started to experience no more bleeding events while they were on romiplostim despite low platelet counts, which is a similar result to another study that mentioned 7 of the 14 non-responders started to experience no more bleeding events while they were on romiplostim despite low platelet counts [36]. This could be attributed to romiplostim-induced improvement in platelet glycoprotein VI levels and collagen-dependent aggregation, which improves platelet function [41]. Platelets are important for maintaining vascular integrity, providing the surface for coagulation proteins that aid adherence to the vessel wall at sites of injury [42]. The observed bleeding could be responsible for the anemia conditions found in 40 (47.6%) of the patients. The risk of death is elevated in patients with refractory conditions who have a history of bleeding diatheses. The mortality rate among patients with ITP primarily arises from bleeding associated with severe

thrombocytopenia; this rate is observed to be 1.3 to 2.2 times higher than that of the general population [43-47]. Regarding the Brief IP score result reported by the participants, the high score for treatment control means that ITP patients believed in the Romiplostim treatment response, which may have led to an increase in patient adherence. Most of the patients were bleeding; they experienced higher symptoms than others, which made them believe that the illness may continue for their whole life. Data showed a low mean score (4.226 ± 4.616), implying low patient understanding, also known as low health literacy, which can lead to poor health outcomes and increase safety risks [48]. Pharmacists' contact has an essential role in health literacy [49], which can enhance medication adherence, self-efficacy, and quality of life among patients [50]. In Iraq, the majority of pharmacists have an optimistic perception of patient counseling and pharmacy education programs [51].

Study limitations

This study includes a limited number of ITP patients, which may be a significant limitation, in addition to the inadequate cooperation of the participating patients.

CONCLUSION

Romiplostim demonstrated effective management for Iraqi patients, who expressed confidence in its treatment. Low levels of patient understanding were noticed among the patients; education programs and patient counseling are required to increase health literacy among patients with immune thrombocytopenic purpura.

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Conflict of interests

The authors declared no conflict of interest.

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Data sharing statement

Supplementary data can be shared with the corresponding author upon reasonable request.

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