

Cost of Treatment of Chronic Spontaneous Urticaria in Turkey

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Abstract

Chronic Spontaneous Urticaria (CSU) is a chronic disease with significant negative impact on quality of life of patients. The direct and indirect costs of the disease can be substantial both for the health care system and society. The aim of this research is to estimate the cost of mild, moderate and severe CSU in Turkey and to forecast the cost of the disease from the payer (Social Security Institution—SSI) perspective. Expert opinions with Delphi technique were used in order to determine the cost items and their frequency. A questionnaire was designed to outline resources used in the outpatient, inpatient and emergency care episodes and was answered by dermatologists followed by a consensus meeting. Unit costs were calculated from the price list of the SSI. The annual total cost of treating the disease to the SSI was estimated as 262,111,978TL (94,417,870€) comprising 0.06% of the total healthcare budget in 2013. Since there is limited information about the cost of CSU in Turkey, the methodology and results of this study are unique and very important.

Keywords

Chronic Idiopathic Urticaria, Chronic Spontaneous Urticaria, Turkey, Cost

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1. Introduction

Chronic Spontaneous Urticaria (CSU) is a chronic dermatological disease where patients may experience severe deterioration in their quality of life. CSU is defined as the occurrence of spontaneous pruritic hives and/or angioedema persisting for 6 weeks or more with no obvious cause [1] [2]. Patients may experience loss of energy, sleep disturbance, emotional distress accompanied by restrictions to their social life [3] [4]. Typically, the disease lasts between 1 to 5 years with repeated episodes although there are exceptions where the duration can extend to 10 to 15 years [5] [6]. It is stated that over 50% of CSU patients experience at least one recurrence symptom after apparent resolution [7]. As stated by Zazzali *et al.* [1], the epidemiology, treatment patterns and burden of CSU have not been well described. Chronic urticaria is estimated to occur in 0.1% of the population. Approximately 60% of chronic urticaria is termed as ordinary without a physical or vasculitic origin. CSU, is estimated to account approximately two thirds of ordinary urticaria [6] [8]. Angioedema occurs in approximately 50% of the CSU cases and delayed pressure urticaria in about 40% [9].

Although not very well reported, the impact of the disease on quality of life of patients can be substantial, making it a challenge both for the clinicians and policy-makers. Kang *et al.* [10], in their study investigating the impact of CSU on Korean patients, concluded that the disease can have a significant impact on the quality of life of patients and the duration of the disease is an important determinant of this impact. In one of the earlier studies using the Nottingham Health Profile, it was demonstrated that CSU patients suffer in many aspects comparable quality of life impairments as patients with severe coronary artery disease waiting for bypass surgery [11]. Engin *et al.* [12], investigated the levels of depression, anxiety and quality of life in patients with CSU among 73 patients in Turkey. The results confirmed that the quality of life was significantly reduced in CSU patients especially in physical health and psychological health dimensions. The results of this study supported the evidence provided by another study among Turkish patients where 60% of the patients involved had psychiatric diagnosis and 40% depressive disorders [13]. In another study inquiring levels of depression and anxiety among 27 Turkish children with CSU and 27 healthy subjects, similar results were found about the relationship between depression, anxiety and behavioral problems and CSU in children [14].

The diagnosis of urticaria is primarily clinical with special emphasis on patient's history [15]. There is a debate about the use of laboratory tests in diagnosis of the disease. It is stated that most investigators have reached a consensus that tests such as CBC, chemistry panel, complement levels and skin test are noncontributory, whereas autoimmune markers such as anti-nuclear (ANA), AST, ATA and total IgE are worthy of consideration [8]. Kozel *et al.* [16] systematically reviewed 29 studies describing 6462 patients and concluded that in the majority of the studies they look into, laboratory tests were regarded as of little value.

A number of guidelines have been developed in Europe [2] [15] [17] [18]. CSU is treated with non-sedating H1 antihistamines (nsAHs) as a first line treatment but the response rate is approximately 40% - 50%. Up-dosing of nsAHs is recommended for non responders as a second line treatment, however, still 30% - 35% of patients remain as no responders. Currently leukotriene receptor antagonists (LTRAs) followed by ciclosporin, Dapsone and Omalizumab are recommended as third and fourth line treatments. Treating the inadequately controlled patients with up to a 4-fold higher dose of second-generation H₁ antihistamines is recommended as well. However, these drugs do not provide symptom control in all CSU patients and there is an unmet clinical need in this therapeutic area [7].

CSU can have economic impact both on individuals and public budgets. It is estimated that the cost of the disease per patient was 2075\$ in the US of which 15.7% was caused by indirect costs [6]. In another study by Zazzali and others [1], the direct cost per patient was estimated as 1762\$. In a recent study, DeLong and others [19] showed that the mean annual cost of CSU patients conventionally treated with antihistamines were more than 2000 \$ per patient per year. Four direct costs and two indirect health care costs were included in this calculation as: medication, outpatient visits, hospital and emergency department visits, laboratory costs, wages lost because of travel to outpatient visits and wages lost because of absences from work. It was concluded that 30% of patients required at least one hospital emergency department visit per year. Based on the findings of this research, the annual cost of CSU was estimated as around 2.5 - 5 billion\$ in the US [7].

Turkey's health care system is split between two government agencies in terms of financing and provision: the Social Security Institution (SSI) and the Ministry of Health. The SSI is the monopsonic power purchasing all health care services from the public and private sector. The reimbursement prices of all services are determined by an intersectoral Reimbursement Commission in the SSI and since 2008, submission of detailed pharmaco-

conomic analysis and budget impact analysis are required for new molecules. The development of health economics as a discipline in Turkey has only a decade long history. For this reason, cost of disease studies is also quite new and rare. Considering lack of public cost data and difficulties in undertaking retrospective and prospective long term cost studies, expert opinion is an alternative and acceptable option to estimate the cost of a disease.

The aim of this research is to estimate the cost of mild, moderate and severe CSU in Turkey and forecast the annual cost of the disease to the Social Security Institution.

2. Methodology

CSU was classified as mild, moderate and severe in the calculations according to Urticaria Activity Score (UAS). UAS score between 7 - 15 was accepted as mild, 16 - 27 was accepted as moderate and 28 - 42 was accepted as severe disease.

The cost of a disease to a society can be calculated with various ways depending on availability of data and the cost perspective. In the absence of data, compiling information on the type and frequency of resources used to diagnose and treat the disease through an expert panel is a plausible methodology [20] [21]. The following stages were followed in the study:

1) Preparation of the question form: The questions were designed to explore the resources used in clinical practice and were structured around the severity of the disease (mild, moderate and severe). The resources used were inquired for determining aetiology, outpatient care and monitoring, inpatient care, emergency care for mild, moderate and severe CSU as well as diagnosis of angioedema and its treatment.

2) Determining the experts: Seven dermatologists from different hospital settings, acting as key opinion leaders for the disease participated in the study.

3) First stage—Sending the questionnaires and analysis of responses: The question forms were sent to the experts by e-mail with a reminder stating that the filled questionnaires should be sent back within 10 days. The answers by experts were compiled and mean and median values were calculated for each response.

4) Second stage—Face-to-face meeting: A meeting was organized with all experts and the research team members. The compiled items and mean and median values were discussed one by one with the experts until reaching a consensus about the cost items, their frequency and timelines. None of the questions were left without reaching a consensus.

After reaching a consensus for each cost item and their frequency, the cost per item was calculated using the SSI tariff list.

3. Results

The experts were asked epidemiological information about the disease in order to estimate the total cost of the disease to the SSI. **Table 1** presents the consensus reached regarding number and % of the population with different CSU severity. The experts stated that the percentage of patients diagnosed by urticaria is 20% and the percentage of patients with CSU as 0.3%.

Table 1. Epidemiology of CSU in turkey.

% of patients with urticaria diagnosis in general population	20
% of patients with CSU in general population	0.3
Number of treated CSU patients	254
% of treated patients with mild CSU	50
% of treated patients with moderate CSU	40
% of patients with severe CSU	10
Relapse % of patients treated with CSU	50
Average treatment length of CSU patients	2 years

As stated earlier, the cost of treating CSU to the SSI was calculated for mild, moderate and severe forms of the disease. The tables below [Tables 2-4] present the findings of the study.

The total cost to the SSI was found as 83,417,703 TL (€25,227,637 - 1€= 3.3066TL – 09.08, 2016) for mild, 121,682,158 TL (€36,799,782) for moderate and 57,012,117 TL (€17,241,915) for severe disease. The annual total cost of treating the disease to the SSI was found as 262,111,978 TL (€79,269,334).

Table 2. Annual cost of mild CSU to the SSI in turkey.

Cost of mild CSU (TL)	
Cost of aetiology	26.29
Cost of outpatient care and monitoring	699.07
Total	72.36
2013 population	76,667,864
CSU population	230,004
Mild CSU population	115,002
Annual cost of mild CSU	83,417,703

Table 3. Annual cost of moderate CSU to the SSI in turkey.

Cost of moderate CSU (TL)	
Cost of aetiology	27.45
Cost of outpatient care and monitoring	848.44
Cost of inpatient care	287.65
Cost of emergency care	117.65
Additional cost of angioedema	41.43
Total	1322.61
2013 population	76,667,864
CSU population	230,004
Moderate CSU population	92,001
Annual cost of moderate CSU	121,682,158

Table 4. Annual cost of severe CSU to the SSI in turkey.

Cost of severe CSU (TL)	
Cost of aetiology	31.78
Cost of outpatient care and monitoring	1246.41
Cost of inpatient care	951.57
Cost of emergency care	207.56
Additional cost of angioedema	41.43
Total	2478.75
2013 population	76,667,864
CSU population	230,004
Severe CSU population	23,000
Annual cost of severe CSU	57,012,117

4. Discussion

This study aimed at exploring the annual treatment cost of CSU patients to the SSI in Turkey. As seen from above, the total cost of CSU to the SSI was found as 262,111,978 TL ((€79,269,334). The total health expenditure of the SSI was 45,955,844,000 TL for 2013 making the share of CSU expenditures as 0.06% [22].

The annual cost of CSU is highly influenced by the severity of the disease and the number of patients at that severity level. The annual cost per patient is the highest for severe CSU whereas the annual cost is the highest for moderate CSU because of higher number of patients at this level. There is no cost of emergency care, inpatient care or additional cost of angioedema for mild CSU whereas these costs exist in the moderate and severe CSU. As expected, these costs are the highest for severe disease. Cost of inpatient care is 38% of the annual cost of severe CSU whereas its share is 22% for moderate CSU.

Expert opinion was used to find out the type and frequency of resources used in treatment of mild, moderate and severe CSU. Studies inquiring the cost of a disease in Turkey are quite rare and no research about the cost of CSU is found in literature. The current availability of data does not support to make complex analysis to estimate the cost of a disease to the payer agency. Currently, referring to expert views is regarded as an important and widely used methodological tool. This study is an example of this methodology. According to the estimates, CSU constitutes 0.06% of the total SSI health care expenditure (Total SSI health care expenditure was 45,955,844,000 TL in 2013). If the SSI shares the extensive data stored in the institution, the accuracy of this estimation can be checked. These estimates do not include the indirect cost of the disease to the patient and the society. In addition to this the quality of life aspect of the treatment of the disease is not covered as well. If these are also included in the estimates, the cost of CSU to the SSI and society will be more.

5. Conclusions

CSU is a chronic dermatological disease with a severe impact on quality of life of patients in some cases. The disease manifests itself with occurrence of spontaneous pruritic hives and/or angioedema persisting for 6 weeks or more with no obvious cause. CSU can also impose an economic burden on health care systems as well. This study is the first example to explore the economic burden of CSU in the Turkish health care system.

The total cost of the disease to the Turkish reimbursement agency was estimated as €79,269,334 annually making approximately 0.06% of the total SSI budget. Although the share of the disease in the SSI budget may seem low, when indirect costs and the impact of the disease on the quality of life of the patient are also taken into account, the burden of the disease will be much higher.

As a concluding remark, it can be stated that, despite the limitations of the methodology in this study, in the absence of real life cost data, the methodology provides a starting point for discussions. The SSI has a detailed database (MEDULA) covering all expenditures classified by ICD 10 at all health care levels. If this information is publicly shared, the validity of the above methodology and results can be questioned. The SSI has just published a detailed analysis of diabetes expenditures in Turkey based on the MEDULA database [23]. Similar studies should also be made for other diseases.

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Author Contributions

Mehtap Tatar, Ayşen Şentürk, Gülpenbe Ergin Oğuzhan and Esin Tuna designed the study and undertook the Delphi panel, Sezen Selin Çavuşoğlu, Abdulkadir Keskinaslan, İsmail Mete Saylan organized the Delphi Panel, analyzed and interpreted results, Cem Mat, Emel Bülbül Başkan, Ferda Artüz, Nilgün Atakan, Serhat İnalöz undertook the research, analyzed and interpreted the results. Mehtap Tatar prepared the manuscript.

Conflict of Interest

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