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Direct Medical Costs of Chronic Urticaria in a Private Health Organization of Buenos Aires, Argentina

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ABSTRACT

Background: Scarce studies address the issue of resource consumption and direct health care costs of patients diagnosed with adult-onset chronic urticaria (CU). **Objectives:** To estimate medical resource consumption and direct health care costs of affected patients in a private health maintenance organization in Buenos Aires, Argentina. **Methods:** Patients diagnosed with adult-onset CU (International Classification of Diseases, Ninth Revision, Clinical Modification code 708.1, 708.8, or 708.9) and who were members of the Italian Hospital Medical Care Program were included in the study. All data on hospitalizations, drug prescription, outpatient episodes, consultations, and investigations/tests in the 12 months before inclusion in the study were considered for the estimation of medical resource consumption and direct health care costs. Third-quarter 2014 costs were obtained from the Italian Hospital Medical Care Program and converted into US dollars (using the November 2014 exchange rate). **Results:** A total of 232 patients were included in the study. The mean age at diagnosis was 54.2 ± 20.0 years, and the mean disease duration was 5.4 ± 2.6 years (range, 2–22 years). Of the total number of patients, 75% had allergists as their

usual source of care, 23% had dermatologists, 18% had internists, and 3% had rheumatologists. Only 7.8% of the patients had an emergency room admission to manage CU symptoms. To manage the disease, 57.8% of patients used antihistamines and 11.6% used oral corticosteroids. The most relevant source of cost was the medical treatment received, followed by physician visits. The average yearly direct cost per patient was US \$1015 $\pm$ \$752 (95% confidence interval 803–2003). **Conclusions:** This is the first Argentine study that evaluated the costs of CU considering the direct medical costs of the disease. The study provides information on resource utilization and the disease-related economic burden, which is valuable to better understand CU in the local setting. Future research that takes into consideration the direct and indirect costs of the disease will expand knowledge and improve management of the disease.

Keywords: Argentina, chronic urticaria, costs.

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Introduction

Chronic urticaria (CU) is a common condition defined by the presence of urticaria on most days of the week, for a duration longer than 6 weeks [1,2]. The condition affects approximately 0.1% of the general population in North America [3]. The disease is an episodic and self-limited disorder in most patients [4]. The average duration of the disease is 2 to 5 years [3,4] and in patients in whom no trigger or underlying disorder is identified, there is a rate of spontaneous remission at 1 year of approximately 30% to 50% [5,6]. The duration of the disease in adults has been approximately reported to be as follows: 6 to 12 weeks in 52.8%, 3 to 6 months in 18.5%, 7 to 12 months in 9.4%, 1 to 5 years in 8.7%, and more than 5 years in 11.3% [5]. Despite the fact that it is not a life-threatening disease, several studies over the last decade have shown that it has a significant impact on quality of life (QOL) and resource consumption in affected patients [7,8]. The effects of CU on QOL are comparable with those experienced by patients suffering from ischemic heart

disease, with considerable loss of energy, sleep disturbance, and emotional upset [7]. In children and young adults, the disease shows an increase in absenteeism from school and work [9].

Scarce information exists regarding CU and the burden of the disease in Argentina. Despite the previous evidence on the impact of the disease on QOL, scarce studies address the issue of resource utilization and direct health care costs of patients diagnosed with adult-onset CU in the region or in other parts of the world. To better understand the impact of the disease, the objective of this study was to estimate medical resource consumption and direct health care costs for patients with CU in Buenos Aires, Argentina, from the perspective of the payer.

Methods

A retrospective, epidemiological, and observational study was conducted. The population studied included the members of the

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Italian Hospital Medical Care Program (IHMCP), a prepaid health maintenance organization. The IHMCP provides comprehensive medical and health services through 2 main hospitals and 24 medical offices to more than 164,456 members primarily located in the urban areas within the autonomous city of Buenos Aires in Argentina. The city covers an area of 202 km² and has a subtropical climate. It is located on the western bank of the Río de la Plata and has a population of 2,890,151 [10]. All patients who were diagnosed with adult-onset CU (*International Classification of Diseases, Ninth Revision, Clinical Modification* code 708.1, 708.8, or 708.9) during January 2002 to January 2013, were 18 years and older, were members of the IHMCP, and with at least 18 months of follow-up were included in the study. Multiple methods of case finding were used to ensure complete ascertainment: 1) patients included in allergist databases, 2) patients with the *International Classification of Primary Care* code in the IHMCP computer-based patient record system, and 3) patients with the *International Classification of Diseases, Ninth Revision* code 708.1, 708.8, or 708.9 on admission to hospital. Each potentially eligible subject underwent a standard procedure to confirm the diagnosis by allergy experts who determined whether patients fulfilled the CU diagnosis.

The study protocol and questionnaire were approved by the Ethics Committee before the initiation of the study.

Resource Utilization

Data on hospitalizations, drug prescription, outpatient episodes, consultations with general or specialist medical practitioners, and investigations/tests in the 12 months before the inclusion in the study were collected from electronic records of the included patients. Electronic records of IHMCP patients provide daily routine information on patients' diseases and therapies.

Costs

To obtain the cost per patient per year, annualized resources were multiplied by their respective unit costs to obtain the annual cost. Third-quarter 2014 unit costs were derived from the IHMCP. The unit costs in Argentine pesos were converted to US dollars using the November 2014 exchange rate (US \$1 = AR \$8.46). Unit costs derived from the IHMCP were compared with those from the public sources of Argentina, including the National Institute of Statistics and Surveys [10], the National Cost Database (Nomenclador Nacional) [11], and the Public Price List of Drugs [12], to avoid significant differences. The following were the costs (in US \$) from the perspective of the payer: general physician, 15; specialist, 20; emergency visit, 85; hospital admission, 155; laboratory test, 21; dermatological test, 49; and serum test, 57.

Statistical Analysis

Patients' demographic and disease characteristics, as well as resource utilization and costs, were analyzed using descriptive statistics (percentage, mean, and SD). Confidence intervals (95%) were estimated by using nonparametric bootstrapping. A nonparametric statistical test (Wilcoxon-Mann-Whitney test) for independent samples was used to determine whether differences between comparisons performed were statistically significant ($P < 0.05$). Stata version 10.1 software (StataCorp, College Station, TX) was used for the analysis.

Results

Patient Characteristics

A total of 232 patients were included in the study. The mean age at diagnosis was 54.2 ± 20.0 years, 68.1% were women, and the

Table 1 – Baseline characteristics of patients enrolled.

Variable	N	% of SD	Range
N	232	–	–
Sex			
Male	74	31.9	–
Female	158	68.1	–
Mean age (y)	54.2	± 20.5	18–92
Mean age at diagnosis (y)	48.8	± 20	12–86
Disease duration (y)	5.4	2.6	2–22
Allergic comorbidities			–
Asthma	23	9.9	–
Rhinitis	17	7.3	–
Rhinitis and asthma	8	3.4	–

mean disease duration was 5.4 ± 2.6 years (range 2–22 years). Of the patients, 53.9% had a disease evolution of less than 5 years, whereas only 1.7% of the included patients had a disease evolution of more than 5 years. Other patient characteristics are presented in Table 1.

Resource Utilization

Almost 75% of the patients had allergists as their usual source of care, 23% had dermatologists, 18% had internists, and 3% had rheumatologists. Only 7.8% of the patients had an emergency room admission to manage CU symptoms. To manage the disease, 57.8% of the patients used antihistamines, 11.6% used oral corticosteroids, and 2.6% used montelukast. Data on other resource utilization by patients are presented in Table 2.

Costs

Direct costs were obtained from resource consumption as previously described. The most relevant source of cost was the medical treatment received, followed by physician visits. The average yearly direct cost per patient was US \$1015 $\pm$ \$752 (95% confidence interval 803–2003). All costs driven from resource utilization are presented in Table 2.

Discussion

This is the first study performed in Argentina and in the region that evaluates the costs of CU considering the direct medical costs of the disease. Mean annual cost per patient was estimated at US \$1012 $\pm$ \$750 in patients with adult-onset CU. Scarce studies address the issue of costs of the disease considering that it is not a life-threatening condition. Nevertheless, the impact on patient-reported outcomes as well as on QOL has previously been well addressed [8]. Yun et al. [13] described sleep disturbance leading to daytime tiredness and irritability in patients with CU and results were in line with a previous study reported in Korean patients by Kang et al. [14] in which a longer disease duration was related to a decrease in QOL, principally in social activities [14]. Despite these earlier reports that took into account QOL and patient-reported outcomes, there are no studies that consider the impact that the disease has either on direct health care resource utilization or its cost.

Our study has many limitations. First, the sample involves patients from only one center. Therefore, a larger sample that involves more centers would be necessary to generalize the results. The second limitation is the manner in which the information was obtained (retrospectively, by collecting information from medical records). Nevertheless, considering that the patients from the IHMCP are seen solely in its own centers and that all medical records are registered, the possibility of

Table 2 – Resource utilization and annual direct medical costs of included patients (n = 232).

Resources	Resource utilization			Annual direct medical costs	
	Unit	% (n) of resource utilization*	Mean $\pm$ SD of resource utilization*	Mean $\pm$ SD	(95% CI)
Specialist consultation	Visits	81.5 (189)	1.5 $\pm$ 0.8	17.5 $\pm$ 9.3	7.7–41.8
General consultation	Visits	57.6 (134)	1.5 $\pm$ 1.4	10.3 $\pm$ 9.5	5.0–40.4
Outpatient care	Visits	6.5 (15)	2.0 $\pm$ 0.9	1.3 $\pm$ 0.6	0.7–4.5
Emergency room care	Visits	7.8 (18)	0.5 $\pm$ 0.3	12.7 $\pm$ 7.7	5.9–41.0
Hospital admissions	Days	5.6 (13)	1.5 $\pm$ 0.9	0	–
Routine laboratories	Procedures	84.5 (196)	1.5 $\pm$ 1.3	14.4 $\pm$ 12.4	7.6–66.2
Dermatological tests	Procedures	13.4 (31)	0.14 $\pm$ 0.37	4.0 $\pm$ 5.0	3.2–6.6
Serum tests	Procedures	3.9 (9)	0.04 $\pm$ 0.2	3.4 $\pm$ 3.8	2.6–8.9
Antihistamines	Procedures	57.8 (134)	NA	319 $\pm$ 248	277–539
Corticoids	Patients	11.6 (27)	NA	125 $\pm$ 88.6	101–203
Azathioprine	Patients	0	NA	–	–
Montelukast	Patients	2.6 (6)	NA	366 $\pm$ 277	283–539
Treatment of adverse events	Patients	3.5 (8)	NA	141 $\pm$ 90.5	112–378
Total direct medical costs (US \$)	–	–	–	1015 $\pm$ 752	803–2003

CI, confidence interval; NA, not applicable.

* Resource utilization is by patient per year.

bias is low. The third limitation is that indirect costs were not obtained. Costs and resource utilization could be greatly increased when taking into consideration the condition.

Conclusions

The main contribution of this study to the existing literature concerning CU both in Argentina and in the region, in terms of costs in a developing country, is the significant and novel information provided about resource utilization and the disease-related economic burden. This information is a valuable tool to better understand CU in the local setting. Future research that takes into consideration the direct and indirect costs of the disease will expand knowledge and improve management of the disease.

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