Four-week Urticaria Activity Score-7 as a Useful Patient-reported Outcome to Assess Chronic Spontaneous Urticaria: A Multicentre Study Evaluation of Adherence and Patients' Perspective

Cataldo PATRUNO[1], Maddalena NAPOLITANO[2], Silvia FERRUCCI[3], Lucia BRAMBILLA[3], Katharina HANSEL[4], Monica CORAZZA[5], Donatella SCHENA[6], Caterina FOTI[7], Paolo ROMITA[7], Rosella GALLO[8] and Luca STINGENI[4]

[1]Section of Dermatology, Department of Health Sciences, University Magna Graecia of Catanzaro, IT-88100 Catanzaro, [2]Section of Dermatology, Department of Medicine and Health Sciences Vincenzo Tiberio, University of Molise, Campobasso, [3]Dermatology Unit, Fondazione IRCCS Ca' Granda, Ospedale Maggiore Policlinico, Milan, [4]Section of Dermatology, Department of Medicine, University of Perugia, [5]Section of Dermatology and Infectious Diseases, Department of Medical Sciences, University of Ferrara, [6]Section of Dermatology and Venereology, Department of Medicine, University of Verona, [7]Department of Biomedical Science and Human Oncology, Dermatologic Clinic, University of Bari, and [8]Section of Dermatology, Department of Health Sciences, University of Genoa, Ospedale Policlinico San Martino, Genoa, Italy. E-mail: cataldo.patruno@unicz.it

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Chronic spontaneous urticaria (CSU) is a condition characterized by the recurrence of itchy wheals without any specific trigger for longer than 6 weeks (1). In CSU the wheals fluctuate throughout the day. Therefore, measurement of the activity of the disease and of the effectiveness of treatments is by means of patient-reported outcome (PRO) instruments, such as the Urticaria Activity Score (UAS) (2). The UAS is a quantitative daily diary that includes a once-a-day (3) or twice-a-day (4) self-evaluation score. It is used for both clinical practice and trials to assess disease activity and treatment efficacy (1). Due to the chronicity and remarkable instability of CSU, daily UAS scores are summed over one week to create the UAS7 (3). However, there is a lack of information on adherence to the instrument and the precision with which it is completed. The aim of this study was to evaluate adherence to the once-a-day UAS7 in real life, through an observational, descriptive, multicentre study on consecutive patients with CSU aged ≥18 years.

MATERIALS AND METHODS

All the patients were referred to 7 dermatology centres homogeneously distributed throughout north, central, and south Italy from January 2018 to December 2018. Demographic features including sex and age were recorded. All patients started antihistamine treatment for 4 weeks and were asked to record disease activity for 4 weeks using the once-a-day UAS7. The number of wheals and the intensity of pruritus were recorded and summed to create daily (0–6) and weekly scores (0–42) (**Table I**). At the end of the 4th week, patients rated the simplicity and the effort required to complete the UAS7. For this purpose, a complementary questionnaire was used regarding 5 specific items about the completion of the UAS7: difficulty, boredom, time spent, disturbance of daily activities, and whether they felt better cared for. A 1–10 scale (1–3: negative, 4–6: not sure, 7–10: positive) was used. Each patient completed the questionnaire anonymously and after the medical examination.

Table I. Urticaria Activity Score (UAS)

Score	Number of wheals/24 h	Pruritus
0	None	None
1	<20	Present but not annoying or troublesome
2	20–50	Troublesome but does not interfere with daily activity or sleep
3	>50 or large confluent areas of wheals	Sufficiently troublesome to interfere with normal daily activity or sleep

At the same time, a designated dermatologist completed a 3-item questionnaire (yes or no) for each patient, regarding: (*i*) possible incompleteness; (*ii*) interruption of compilation; and (*iii*) calculation errors. The aim of this questionnaire was to evaluate whether the patient had correctly completed the UAS7 diary and to detect any possible errors. All parameters were analysed descriptively, using as-observed analysis. Mann–Whitney *U* test was used for between-group comparisons of continuous variables. Categorical variables were compared using Fisher's exact test. A p-value <0.01 was considered indicative of statistical significance. The study was approved by the ethics committee of each centre, and informed consent was obtained prior to the interview.

RESULTS

A total of 129 consecutive CSU patients (mean ± standard deviation (SD) age 44.8 ± 16.3 years), mostly female (87/129; 67.4%) fulfilled the enrolment criteria and completed the study. The results of the 5-item questionnaire are reported in **Table II**. None of the results were statistically influenced by sex, age, geographical origin, baseline severity of disease, or response to treatment. Most patients reported that completing the UAS7 was not, or only minimally, difficult (score 1–3: 86.0%) or boring (score 1–3: 79.8%); the daily time spent to complete it was sufficiently brief (score 1–3: 87.6%), and daily activities were not disturbed or conditioned (score 1–3: 93.0%). In contrast, compilation of the UAS7 was reported as difficult (score 7–10: 4.7%) or boring (score 7–10: 7.8%) only in rare cases and the daily time spent was rarely long (score 7–10: 1.6%). Only one patient (0.8%) reported that completing the questionnaire

Table II. Results of 5-item questionnaire administered in 129 patients with chronic spontaneous urticaria (CSU) to evaluate criticisms of Urticaria Activity Score 7 (UAS7) from the patient's point of view using a 1–10 numeric scale[a]

Question	Negative* *n* (%)	Not bad not good* *n* (%)	Positive* *n* (%)
Was it hard?	111 (86.0)	12 (9.3)	6 (4.7)
Was it boring?	103 (79.8)	16 (12.4)	10 (7.8)
Did you take a long time?	113 (87.6)	14 (10.8)	2 (1.6)
Did it disturb your daily activity?	120 (93.0)	8 (6.2)	1 (0.8)
Did it make you feel better taken care of by the dermatologist?	26 (20.2)	23 (23.4)	80 (56.4)

[a]1–3: negative; 4–6: not bad not good; 7–10: positive. *Statistical differences between the 3 scoring groups were significant ($p<0.00001$) for all items.

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significantly hindered daily activities (score 8). The differences found between the 3 scoring groups were significant ($p < 0.00001$) for all these items. Little more than half of the patients felt better taken care of by the dermatologist through UAS7 (score 7–10: 56.4%), while it was of little or no use (score 1–3) in 20.2% of patients. However, even in this case the difference was statistically significant ($p < 0.00001$). The designated dermatologist of each dermatology centre completed the 3-item for all the enrolled patients. At least one error was made in completing the UAS7 by 53/129 (41.1%) patients, 41/53 (77.4%) incompletely completed the questionnaire, 18/53 (34.0%) stopped compiling it before the 4-week deadline, and 11/53 (20.8%) made calculation mistakes. No significant differences were recorded regarding sex, geographical origin of the patients, baseline severity of CSU, or response to treatment. If the type and percentage of responses to the 5-item questionnaire are taken into consideration, no significant differences were found between the groups of patients who had correctly completed the questionnaire and those who had not. Most of the incomplete or interrupted UAS7 compilations occurred after the first week (84.6% and 88.2%, respectively). Patients who correctly compiled the UAS7 were younger than those who did not (42.0 vs. 48.7 years) ($p = 0.01$). Eleven patients, all from a single centre in southern Italy, were asked why they incompletely compiled (2 patients) or stopped compiling (9 patients) the questionnaire. Three reported that it was because they forgot and 8 because they found the instrument useless (3/8) or more useful for the dermatologist than for themselves (5/8).

DISCUSSION

In this study, adherence to once-a-day UAS7 for 4 weeks could not be univocally interpreted. The majority (on average more than 80%) of enrolled subjects found that completing the UAS7 was simple, not boring, did not take a long time, and did not disturb daily activities. Furthermore, 56.4% of patients had the distinct feeling of being better monitored by the dermatologist due to the UAS7, whereas 20.2% had the opposite feeling. On the other hand, the current study also shows that 41.1% of patients did not correctly complete the questionnaire, regardless of the opinion on the simplicity and effectiveness of the instrument. One explanation could be that difficulties in assessing itch and number of fluctuating wheals once daily could lead the patient to fail in drafting the questionnaire or to interrupt the recording (2). Therefore, twice-a-day UAS (UAS_{TD}) (assessment every 12 h) (4) has been introduced, although Hawro et al. (5) reported that both versions of the UAS show good and comparable clinometric properties and recommended the use of once-a-day UAS. Another possible explanation could be that patients might consider completing the UAS7 to be more useful for the physician than for themselves, although these results are from a small group of 11 patients from a single centre. On the other hand, it is possible that, at least in some cases, the questionnaire was not well-described by the physician. It is therefore necessary for the patient to be well educated in using the questionnaire, in particular with regard to the importance of the tool for evaluating the effectiveness of the treatment. Furthermore, it is worth noting that the degree of education of patients was not assessed. Considering that most mistakes and interruptions occurred after the first week, it is also possible that the use of this PRO instrument for several weeks could have a negative effect on the patient's adherence. However, completing the UAS7 over a course of some weeks is essential for monitoring the disease and effectiveness of treatment. Evaluation for a longer period and on a larger sample of patients than those reported in this study would be necessary to better evaluate the adherence and the patients' perspective. In this setting, an interesting and simpler method to assess the activity of CSU could be the Urticaria Activity and Impact Measure (U-AIM) (6). The U-AIM includes 9 patient-reported items and is able retrospectively to assess both activity and impact of the disease during the previous 7 days and does not require daily assessment. Indeed, unlike UAS7 U-AIM requires only one assessment using patients' recall and is also able to assess angioedema. Furthermore, the psychometric properties of the U-AIM have been demonstrated. On the other hand, it should be noted that the UAS7 is able to evaluate and document disease activity on a daily basis, helping the patients actively to address their disease and highlight any triggers. Further studies, comparing the patients' perspective and adherence to the proposed PROs, should better delineate which is the best instrument for use in clinical practice.

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