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ORIGINAL RESEARCH

Urticaria Voices: Real-World Treatment Patterns and Outcomes in Chronic Spontaneous Urticaria

Jonathan A. Bernstein · Tonya A. Winders · Jessica McCarthy · Pallavi Saraswat · Nadine Chapman-Rothe · Tara Raftery · Karsten Weller

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ABSTRACT

Introduction: Chronic spontaneous urticaria (CSU) is characterized by itchy wheals/hives and/or angioedema lasting longer than 6 weeks. Herein, we describe patients' perspectives from the global Urticaria Voices study reporting treatment patterns, disease burden, treatment satisfaction, and expectations.

Methods: This global, cross-sectional online survey was conducted from February to September 2022 in patients with CSU. Eligible patients had a self-reported clinician-provided diagnosis of CSU. Data were analyzed descriptively and reported as percentages (*n*/*N*), means (standard deviation [SD]), or 95% confidence intervals.

Results: Overall, 582 patients with CSU were included in this analysis (62% women; mean [SD] age: 42.0 [11.9] years). At the time of the survey, patients reported taking 2.9 (2.6) concomitant therapies; most patients (79%) were prescribed H1-antihistamines (H1-AH), of which 42% took first-generation H1-AH and 52% took

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J. A. Bernstein (✉)
Division of Allergy and Immunology, University of Cincinnati, Cincinnati, OH, USA
e-mail: bernstja@ucmail.uc.edu

J. A. Bernstein
Advanced Allergy Services, LLC and Bernstein Allergy Group and Clinical Research Center, Cincinnati, OH, USA

T. A. Winders
Global Allergy and Airways Patient Platform, Vienna, Austria
e-mail: twinders@gaapp.org

J. McCarthy
Novartis Pharmaceuticals Corporation, East Hanover, NJ, USA
e-mail: jessica.mccarthy@novartis.com

P. Saraswat
Novartis Healthcare Pvt Ltd, Hyderabad, India
e-mail: pallavi.saraswat@novartis.com

N. Chapman-Rothe
Novartis Pharma AG, Basel, Switzerland
e-mail: nadine.chapman-rothe@novartis.com

T. Raftery
Novartis Ireland Ltd, Dublin, Ireland
e-mail: tara.raftery@novartis.com

K. Weller
Institute of Allergology, Charité-Universitätsmedizin Berlin, Corporate Member of Freie Universität Berlin and Humboldt-Universität zu Berlin, Berlin, Germany
e-mail: karsten.weller@charite.de

second-generation H1-AH. Since the initiation of their first prescribed treatment (6.3 [8.2] years), 80% of patients reported H1-AH switching (2.3 times on average), 62% of whom reported up-dosing (2.9 times on average). In addition, 50% reported currently using glucocorticoids (cream: 72.1%; oral: 48.3%; injection: 25.5%) and 33% reported using any biologic (omalizumab: 26%; dupilumab: 16%): montelukast (18%), doxepin (16%), or ciclosporin (16%). Apart from their prescribed treatments, patients reported currently using additional services (dietetic consultations: 21%, psychological support: 19%) and self-care strategies (e.g., using topical creams, avoiding certain clothing and foods) for CSU management. Most patients (65%) reported that their current treatments did not adequately control their CSU symptoms. Overall, 37% of patients reported experiencing stress due to the unpredictable nature of the disease.

***Conclusions*:** Despite H1-antihistamine switching and up-dosing, most patients (84%) had inadequately controlled disease. Approximately one-quarter of inadequately controlled patients were escalated to more effective treatments such as biologics. These results suggest a need for additional treatment options for patients with inadequately controlled CSU to provide sustained symptom relief.

Keywords: H1-Antihistamines; Chronic spontaneous urticaria; Disease burden; Disease control; Patients' perspectives; Real-world evidence; Urticaria voices; Treatment patterns; Treatment satisfaction and expectations

Key Summary Points

Why carry out this study?

Real-world data of patient perspectives of treatment patterns and management of chronic spontaneous urticaria (CSU) are needed to identify the unmet needs, particularly in understudied populations outside of specialist care.

As the treatment landscape evolves, gaining insights from patient perspectives and perceptions on treatment patterns, disease control, and disease burden is crucial in removing barriers to treatment escalation and reaching controlled disease for patients.

What was learned from the study?

This research reveals that most patients were receiving H1-antihistamines; however, despite frequent up-dosing and switching treatment, most patients with CSU had inadequately controlled disease, highlighting the limitations of current treatment strategies.

There is a substantial burden on patients with CSU who experience considerable dissatisfaction with treatment and negative impact on their emotional well-being, reinforcing the importance of treatment escalation and exploring therapy options.

In their quest for symptom relief and improved health-related quality of life, patients often seek additional services and therapies such as homeopathy therapy, dietary consultations, and psychological support.

INTRODUCTION

Chronic spontaneous urticaria (CSU) is characterized by persistent itchy wheals (hives) and/or angioedema lasting for more than 6 weeks, without any identifiable trigger [1–3]. The global prevalence of CSU is estimated to be 0.5–1.4% [4–6], and occurs twice as often in women than in men [7, 8] Although the average duration of CSU is generally 1–4 years, some patients experience symptoms for over 5 years and even decades [8–10]. Patients with CSU experience intermittent symptoms, leading to significant impairment in health-related quality of life (HRQoL) [2, 4, 11–13].

Global treatment recommendations for CSU (EAACI/GA^{2}LEN/EuroGuiDerm/APAAACI) are based on the severity of symptoms and patient responses to treatment [1]. Second-generation,

non-sedating H1-antihistamines (sgH1-AH), when used at the licensed dose, are recommended as the first-line treatment [1, 14]. If unresponsive or symptoms persist, dose escalation is recommended, up to four times the licensed dose [1, 14]. For patients with an insufficient response to an increased H1-AH dose, the next recommended treatment is omalizumab, an anti-IgE monoclonal antibody. When a patient is unresponsive to high-dose sgH1-AH and omalizumab, ciclosporin can be used as an add-on therapy [1]. A short course of rescue systemic glucocorticoids may be used for acute exacerbation [1, 15].

Despite the recommended guidelines and availability of treatment options, several real-world studies have reported that a significant proportion of patients (approximately 50–80%) experience inadequately controlled disease (Urticaria Control Test [UCT] < 12) [4, 16–23], which negatively impacts patients' well-being and HRQoL [2, 12]. This highlights the need for alternative, effective treatment strategies to address the unmet needs of patients.

The EAACI/GA^{2}LEN/EuroGuiDerm/APAAACI guidelines also recommend the use of patient-reported outcome measures (PROMs) to monitor disease activity, disease control, and HRQoL in CSU [1]. PROMs include a weekly Urticaria Activity Score (UAS7), used to assess disease activity and severity in the previous week [24], and UCT, used to evaluate overall disease control in the past 4 weeks [25], among others, providing data on the impact of CSU on patients' daily lives and guide treatment decisions [26, 27]. In addition to the valuable data provided by PROMs, further evaluation of patients' experiences and the full impact of the disease on their daily lives from real-world data will provide a comprehensive understanding of the multifaceted burden experienced by patients with CSU.

Several real-world evidence studies have utilized online platforms to collect data from patients with CSU regarding disease burden, treatment experiences, and HRQoL. These studies have highlighted the importance of understanding patients' perspectives to guide treatment decisions and improve outcomes [2, 28–31]. However, the majority of these studies were limited to a single country or to specific populations or geographic regions, restricting generalizability to broader, global patient populations. Our study is novel in its global design, capturing diverse perspectives from patients and physicians across multiple countries. This approach allows for a more comprehensive assessment of CSU treatment patterns, disease control, and burden worldwide, offering cross-cultural insights and addressing limitations in previous studies.

Herein, we present patients' perspectives on treatment patterns for CSU, extent of disease control achieved, and disease burden in patients from the global Urticaria Voices study. In addition, we explored treatment satisfaction and expectations of patients with CSU. By understanding the experiences and perspectives of patients, we can gain valuable insights that may contribute to improving disease management and overall outcomes for individuals living with CSU.

METHODS

Study Design

The Urticaria Voices study was a multinational, non-interventional, cross-sectional, internet-based, quantitative survey conducted between February 2022 and September 2022 [23]. The study included patients with chronic urticaria (CU), including patients with isolated CSU, chronic inducible urticaria [CIndU], and CSU with concomitant CIndU. The study was conducted in seven countries: the USA, Canada, the UK, Germany, France, Italy, and Japan. The survey questionnaire was initially developed in English and subsequently translated into the respective languages by native speakers of each target language residing in their respective countries. To ensure linguistic accuracy and conceptual equivalence, the translations were independently reviewed by additional native-speaking translators of the respective target languages. The surveys also included PROMs, which were officially translated and validated for each of the languages used. This analysis focused on patients with CSU (isolated

CSU or CSU with concomitant CIndU). We present global data in this manuscript and country-level data in the supplementary material. Comprehensive details pertaining to the study design, including the specific methodologies employed, participant selection criteria, and data collection procedures, are thoroughly described in the primary manuscript [23].

Ethical Approval

This study was conducted in accordance with legal and regulatory requirements and fulfilled the criteria of the "European Network of Centers for Pharmacoepidemiology and Pharmacovigilance (ENCePP) study" and followed the "ENCePP Code of Conduct," as previously described [23]. All participants in the survey provided written informed consent forms, approved by the corresponding institutional review board/ethics committee (IRB/IEC) and in accordance with the Declaration of Helsinki and other relevant regulatory requirements. An exemption from ongoing oversight was obtained from the Pearl IRB, who reviewed and granted international approval of an exemption [23].

Patient Population

Eligible patients aged ≥ 18 years with a self-reported clinician-provided diagnosis of CSU with or without concomitant CIndU and currently receiving physician-prescribed treatment for CSU were included, as previously described [23]. Patients participating in any clinical trial for CSU/CIndU and those employed by pharmaceutical or market research companies were excluded from the study. Patients were recruited independently, primarily from a general population panel through Ipsos SA and Rakuten Insights UK, and a subset of them were recruited through patient advocacy groups (PAGs). Patients recruited from the general population panel were remunerated on the basis of fair market value, whereas those recruited through PAGs were not compensated.

Data Collection and Analysis

Primary data were collected through a 40-min internet-based survey, wherein a self-administered UCT was used to assess patients' symptom control over the past 4 weeks. The UCT comprises four questions that encompass physical symptoms (such as itch, hives, and swelling), impact on quality of life (QoL), frequency of treatment inadequacy, and overall control of CSU. Each question in the UCT is given a score ranging from 0 to 4, with higher scores indicating better disease control (completely controlled: UCT = 16; well-controlled: UCT ≥ 12; inadequately controlled: UCT < 12) [25].

Disease severity was assessed using the UCT, a validated PROM, which patients completed independently at the time of the survey. The UCT provides a valid, reliable, standardized measure of disease control in patients with CSU. In addition, we collected patients' self-reported recollections of their physician's classification of symptom severity. Specifically, patients were asked: "How did your doctor classify the severity of your symptoms in the last 4 weeks?" Response options included predefined categories: no symptoms, mild, moderate, severe, and very severe.

Treatment satisfaction and expectations of patients with CSU were assessed on a 10-point Likert scale, with higher scores indicating a favorable response. The Likert scale is a widely recognized method for assessing subjective experiences [32], which was customized to meet the study objectives.

Statistical Analysis

All results were reported using descriptive statistics. A precision-based sample size calculation was employed to determine the minimum sample size required for this study. To achieve a desirable precision of 5% with 95% confidence interval (CI), the study aimed to recruit 1040 patients with CU. Data were analyzed descriptively as the base number of respondents, mean (SD), or 95% CI for continuous variables, and number and percentage of respondents in each

category for categorical variables. Missing values for variables were not imputed, thus resulting in the exclusion of the corresponding respondents from the analyses involving those variables. However, respondents removed from one analysis were still eligible for inclusion in other analyses [23].

RESULTS

Patient Demographics and Disease Characteristics

The Urticaria Voices study population comprised 1127 patients, of which 582 with CSU were included in this analysis (Fig. S1). Of the 582 patients with CSU, 62% were women, and the mean (SD) age was 42.2 (11.9) years. More than one-third of patients (36.4%) reported concomitant CIndU. Comorbidities were reported in 68% of patients, with many (54%) reporting more than two comorbidities. The most frequently reported comorbidities were migraine (21%), anxiety (20%), and sleep disturbance (20%; Table S1). The mean (SD) disease duration was 9.2 (10.3) years, and time since diagnosis was 7.1 (8.5) years. Of the patients with self-recalled physician-assessed disease severity, 49% had moderate disease and 29% had severe to very severe disease (Table 1). Data of patient demographics and disease characteristics by country are presented in Table S2.

Treatment Patterns and Disease Control

At the time of the survey, patients reported taking a mean (SD) of 2.9 (2.6) concomitant therapies. Mean (SD) time since the initiation of their first prescribed treatment was 6.3 (8.2) years. Most patients (79%) were currently prescribed any H1-AH, of which 42% were taking first-generation H1-AH (fgH1-AH) and 52% were taking sgH1-AH. Despite being on H1-AH treatment, 84% had inadequately controlled disease (Fig. 1). Most patients (80%) reported H1-AH switching 2.3 times on average, and 62% reported up-dosing H1-AH 2.9 times on average. Up-dosing H1-AH provided partial or no relief to most patients (75%) and was associated with increased drowsiness (46%) and other new side effects (11%). At the country level, 88% of patients in Germany and 70% in Japan reported H1-AH switching on average 2.5 times and 2.2 times, respectively. Up-dosing H1-AH was reported by 74% of patients in the UK and 42% in Japan, on average 2.1 times and 0.9 times, respectively (Table S3).

Overall, 50% of patients (290 of 582) reported using any glucocorticoids (i.e., glucocorticoid creams, oral glucocorticoids, injected glucocorticoids, or combinations thereof). Some patients were using more than one form of glucocorticoids. Further analysis of those patients who used glucocorticoids revealed that 72.1% (209 of 290), 48.3% (140 of 290), and 25.5% (74 of 290) were currently using glucocorticoid creams, oral glucocorticoids, and injected glucocorticoids, respectively; 21.4% (62 of 290) received short-term (< 10 days) oral glucocorticoids and 1.3% (4 of 290) received long-term oral glucocorticoids for ≥ 10 consecutive days. Regardless of the type(s) of glucocorticoids used, most patients (89%; 257 of 290) had inadequately controlled disease (Fig. 2). Among patients currently on oral glucocorticoids (48.3%; 140 of 290), 53% (74 of 140) received a single emergency dose due to worsening of CSU symptoms. At the country level, the proportion of patients reporting the use of any glucocorticoids ranged between 67% in the UK and 29% in Japan (Table S4).

Overall, 33% of patients reported currently using any biologic in combination or as an add-on with other therapies, including H1-AH (omalizumab, 26%; dupilumab, 16%). At the country level, the current use of biologics varied considerably, ranging from 7% of patients in Japan to 51% in the UK. These variations may be reflective of differences in guideline adherence, accessibility to advanced therapies, or healthcare infrastructure across countries (Table S2). In addition, patients reported taking other therapies including montelukast (18%), doxepin (16%), and cyclosporin (16%). Despite the treatments available, most patients reported inadequately controlled disease; among patients on any biologics, the proportion with UCT < 12 was 83% (omalizumab, 80%; dupilumab, 94%), and among those on other therapies, namely

Table 1 Patient demographics and disease characteristics

Patient characteristics[a]	All CSU[b] (*N* = 582)
Age at the time of the survey (years)	42.2 (11.9)
Gender, *n* (%)	
Women	362 (62)
Men	220 (38)
Years since disease onset	9.2 (10.3)
Years since diagnosis	7.1 (8.5)
Concomitant CIndU, *n* (%)	212 (36.4)
Patient-recalled physician-assessed symptom severity in the past 4 weeks: yes, *n* (%)	273 (47)
No symptoms	10 (4)
Mild	44 (16)
Moderate	135 (49)
Severe	48 (18)
Very severe	31 (11)
Angioedema in the past 12 months, *n* (%)	251 (43)
Angioedema episodes in the past 12 months	7.7 (14)
Comorbidities	2.4 (2.7)
Current therapies, *n* (%)	
Antihistamines	460 (79)
Biologics	193 (33)
Glucocorticoids	290 (50)
Exclusively on H1-antihistamines	138 (24)
Exclusively on glucocorticoids	45 (8)
Exclusively on biologics	18 (3)
Combination of therapies (any treatment)	381 (65)
UCT control[c], *n* (%)	
Inadequately controlled (UCT < 12)	468 (80)
Well-controlled (UCT ≥ 12)	80 (14)
Completely controlled (UCT = 16)	34 (6)

Data are presented as the mean (SD) unless specified otherwise

CIndU, chronic inducible urticaria; CSU, chronic spontaneous urticaria; H1-AH, H1-antihistamine; *n*, number of patients in each group; *N*, total number of patients; SD, standard deviation; UCT, Urticaria Control Test

[a]The answers were based on patient respondents' estimations, perceptions, and overall experiences (not from medical records or secondary data)

[b]Patients with CSU include both patients with isolated CSU ($n = 370$) and patients with CSU with concomitant CIndU ($n = 212$)

[c]Disease severity assessed in the past 4 weeks

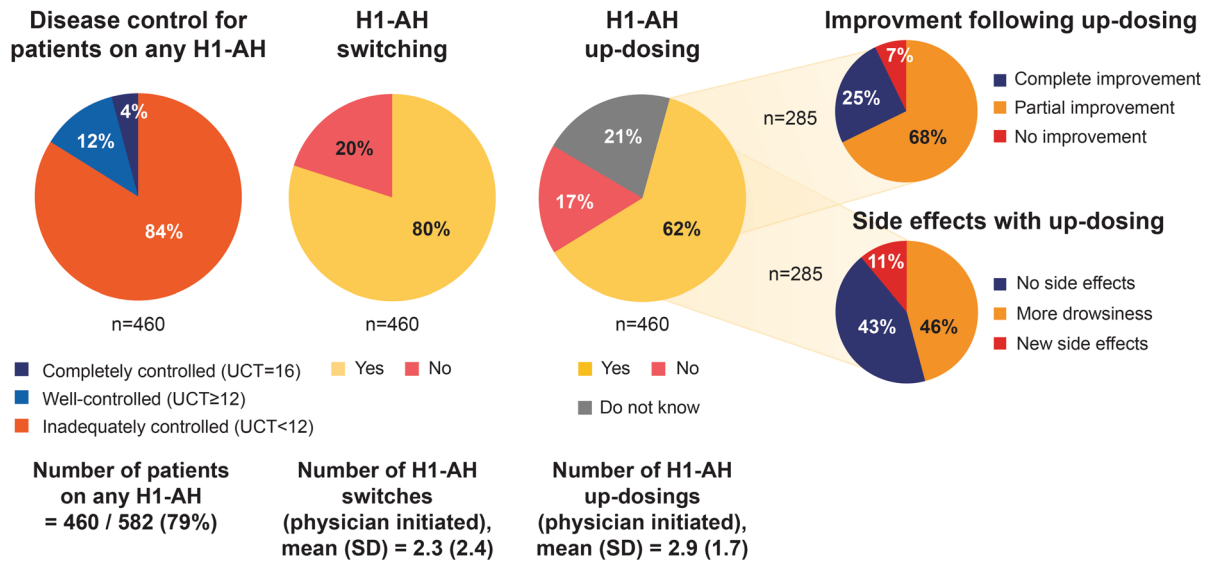

Fig. 1 Patient-reported disease control with H1-antihistamines. Analysis conducted in patients who were on H1-AH (460 of 582 [79%]) from the pooled dataset; country-specific results are published elsewhere; 23.7% of patients (138 of 582) were exclusively on H1-AH and 65.5% of patients (381 of 582) received mixed treatments. CSU, chronic spontaneous urticaria; H1-AH, H1-antihistamine; *n*, number of patients; SD, standard deviation; UCT, Urticaria Control Test

montelukast, doxepin, and cyclosporin, the proportion with UCT < 12 was 89%, 94%, and 93%, respectively.

Use of Additional Health-Related Services

In addition to their prescribed treatments for CSU, 21% of patients consulted a dietician, 19% reported using psychological support, 19% reported using homeopathy therapy, 18% reported practicing meditation, 15% consulted a sleep clinic, and 13% reported using acupuncture for relief from their CSU symptoms. At the country level, Germany reported the use of these additional services more frequently than other countries, while in Japan, these services were less frequently used (Fig. S2). Patients with CSU also reported engaging in self-care practices such as using soothing and moisturizing topical creams (51%), avoiding certain clothing (47%) and foods (39%), and taking vitamins and antioxidant supplements (45%) regularly, in addition to prescribed treatments.

Burden of Disease Despite Treatment

Overall, 37% of patients reported experiencing stress due to the unpredictable nature of the disease and 29% expressed a desperate need to achieve relief from CSU symptoms. In addition, patients with inadequately controlled CSU frequently reported anxiety (31%), feeling moody (29%), and unattractive (28%; Fig. 3). Patients with controlled disease also reported anxiety and stress levels similar to those in patients who were still experiencing CSU symptoms; however, differences were observed in HRQoL domains as reported by Weller et al. [23]. At the country level, the proportion of patients experiencing stress due to the unpredictable nature of the disease ranged from 60% in Canada to 17% in Italy (Table S5).

Treatment Satisfaction and Expectations

In response to the UCT question, "treatment for CSU is not enough to control the symptoms," approximately 65% of patients reported that

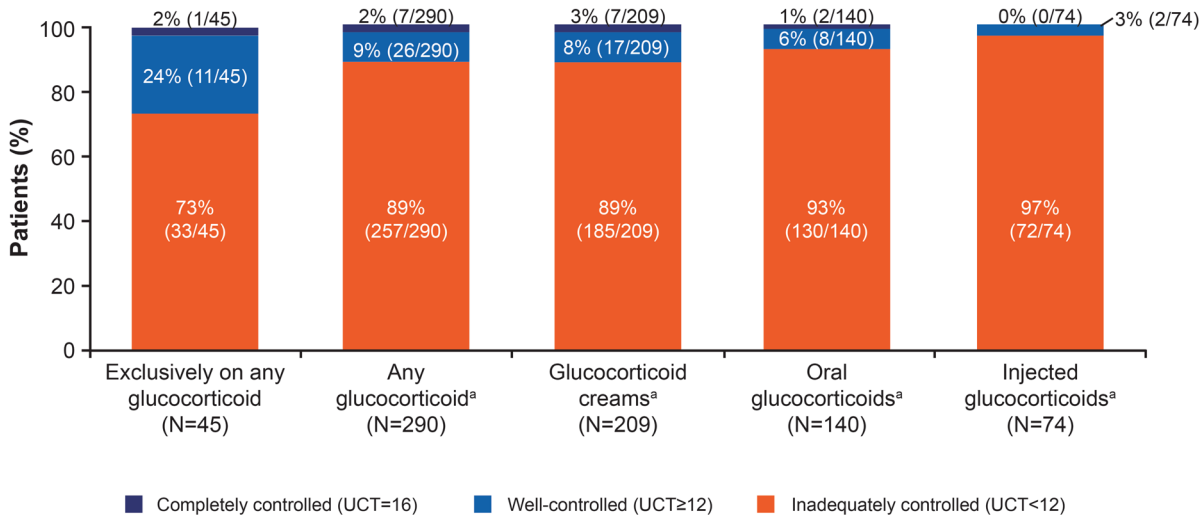

Fig. 2 CSU control in patients using glucocorticoids. These data are based on UCT, thus caution should be exercised while interpreting these data, as most patients in this study received glucocorticoids only once or for a short term to manage exacerbations. As UCT spans a period of 4 weeks, it is important to note that the disease control data may not have been accurate because of glucocorticoid treatment. The percentages are based on the total number of patients in each category; each category is based on the route of administration and are analyzed independently and not as subcategories of "any glucocorticoids." [a] In combination with other treatments for CSU. CSU, chronic spontaneous urticaria; *N*, number of patients; UCT, Urticaria Control Test

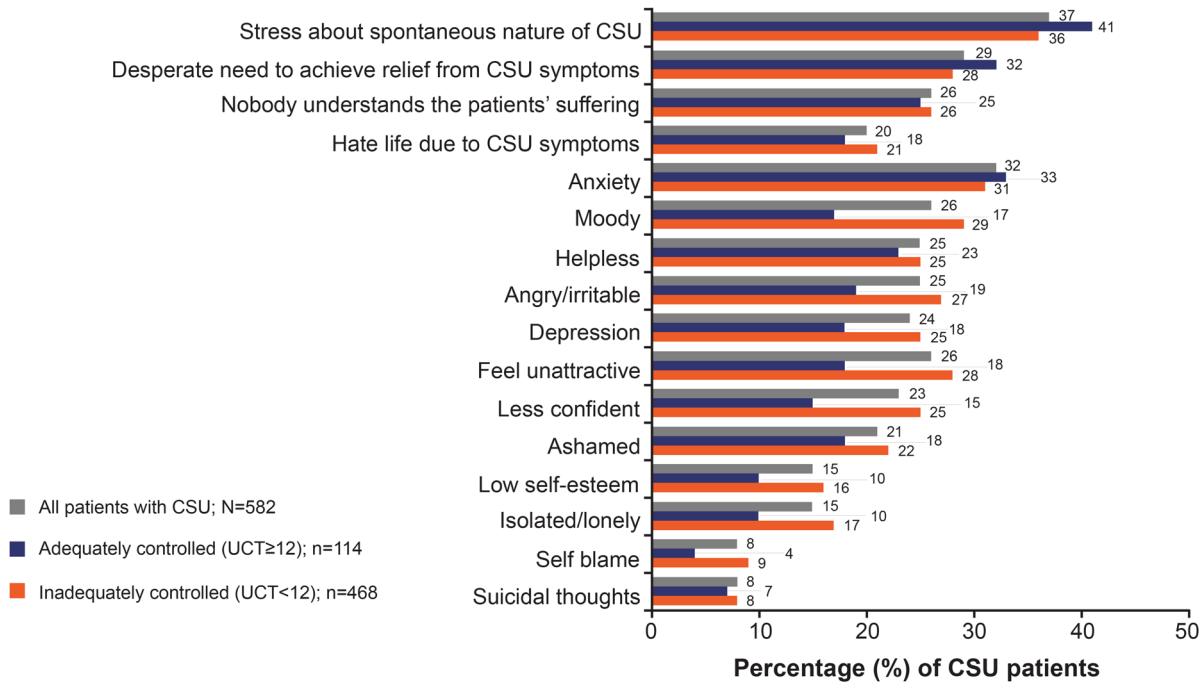

Fig. 3 Impact of CSU on patients' mental and emotional well-being. Data based on responses to the survey question: "Please indicate how you feel about living with chronic urticaria from the list below." CSU, chronic spontaneous urticaria; *N*, total number of patients; *n*, number of patients in each subgroup; UCT, Urticaria Control Test

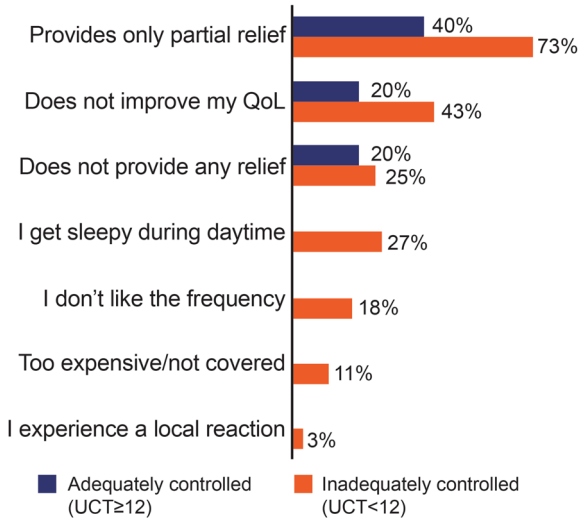

Fig. 4 Satisfaction with current treatment(s) in patients with CSU. Base: all patients with CSU giving a low satisfaction score ($n = 93$). CSU, chronic spontaneous urticaria; SD, standard deviation; QoL, quality of life; UCT, Urticaria Control Test

their treatment did not adequately control their CSU in the previous 4 weeks. The primary reason for treatment dissatisfaction was that the current treatment provided only partial relief from their symptoms, which was reported by 73% of those with inadequately controlled disease and 40% of those with adequately controlled disease (Fig. 4). However, when patients were asked about their overall treatment satisfaction with the current treatment, mean scores of 7.2 (for inadequately controlled patients) and 8.6 (for adequately controlled patients) were reported (10 indicating the highest treatment satisfaction). The most important treatment expectations for patients with CSU identified in this study were being free of itch and hives (mean [SD], 7.9 [2.6]), improved symptom control (7.7 [2.7]), improved QoL (7.6 [2.7]), and long-term remission (7.6 [2.7]; Table S6). Being free of itch and hives was also identified as the most important expectation at the country level (range: Canada, 9.0 [2.7]; Germany, 6.5 [3.3]; Table S6).

DISCUSSION

The Urticaria Voices study provides valuable insights into the treatment patterns, disease control, disease burden, treatment satisfaction, and expectations of patients with CSU. This study highlights patients' perspectives of CSU, providing real-world insights from patients across geographical regions. The results demonstrate that, despite the availability of various treatment options to manage the disease, a substantial proportion of patients with CSU experience inadequately controlled disease and lack of therapy escalation beyond antihistamines.

Lack of Efficacy of Current CSU Therapies

In this study, most patients with CSU were using H1-AH–based therapies (79%). However, more than 80% of these patients reported inadequately controlled disease despite being on H1-AH, and only 4% reported complete control of their symptoms. This result is consistent with those in other studies that have reported inadequate disease control with H1-AH-based therapies in > 78% of the patients with CSU analyzed [21, 22]. Several studies have reported that 45–65% of patients with inadequately controlled disease were escalated to up-dosed H1-AH treatment in line with guideline recommendations [16–18, 33–38]. However, up-dosing of H1-AH has also been reported to be ineffective or to not sufficiently improve symptoms in 40–70% of patients [22, 39]. Similarly, we found that up-dosing H1-AH provided either no relief or only partial relief in 75% of the participating patients.

In this study, nearly 50% of patients reported using glucocorticoids, of which the majority remained symptomatic (89%), suggesting that glucocorticoids may not be effective in achieving long-term symptom control and sustained relief. Most of the patients who used glucocorticoids were on short-term regimens, and only 3% reported long-term use of glucocorticoids. By contrast, in a retrospective cohort study, approximately half of the patients with CSU (55.4%), followed up for at least 12 months, reported using long-term oral glucocorticoids (mean exposure: 16.2 days) [1, 14, 40]. Furthermore, a

cross-sectional study of 529 patients with CSU reported lower treatment satisfaction associated with topical glucocorticoid use than with H1-antihistamines [28].

Similar findings were observed among patients currently being treated with biologics, with the majority (83%) reporting inadequate control of their CSU symptoms. There are likely several factors contributing to this unexpectedly high proportion; for instance, patients who participated in the survey had a prolonged disease duration of > 7 years and were less responsive or unresponsive to treatment or had recently initiated biologic treatment, which may not have reached its full therapeutic effect. Therefore, these results must be interpreted with caution.

Emotional Burden of CSU

The impact of CSU on emotional well-being was similar across patients. When assessing the CSU burden, we found that patients, regardless of the extent of disease control, often experienced stress due to the spontaneous nature of the disease and reported anxiety and a sense of isolation, feeling that people do not truly understand the extent of their suffering. This observation highlights the emotional effects of CSU, extending beyond symptom control, which should be considered in patients who experience a prolonged inadequately controlled disease duration (in this instance, > 7 years). Effective symptom control is essential to alleviate additional complications such as stress and anxiety over time.

Patient Satisfaction and Treatment Expectations

Overall, patients rated their satisfaction with current treatment as high (7.5 of 10), despite reporting a high level of inadequately controlled disease, an impact on HRQoL [23], and ongoing stress and anxiety. This suggests a potential coping mechanism by patients that may contribute to the relatively low level of treatment escalation reported, as treatment dissatisfaction is not adequately communicated to treating physicians. A study conducted in Japan reported that higher treatment satisfaction and lower disease burden correlated with patients who achieved adequate control of their symptoms [28]. In our study, patients reported that the most important treatment expectations were being free of itch and hives, improved symptom control, and long-term remission. These results are supported by those from previous reports [29, 41] and largely align with the CSU guideline recommendations, suggesting the use of these guidelines to better align current practice with patient needs.

Guideline Adherence Inconsistencies in CSU Management

Our study results suggested some adherence with the recommended international guidelines for CSU management [1, 39]; however, with most patients reporting the use of H1-AH, it is worth highlighting that a considerable number of patients reported taking treatments other than those recommended by the guidelines. Notably, 42% of patients received fgH1-AH, 16% were taking doxepin, and 18% were taking montelukast, which are not recommended in the international guidelines, although they are included in some local guidelines (guidelines in the USA, UK, or Japan) [42–44]. Our findings also revealed that patients reported frequent use of topical glucocorticoids (72.1%; 209 of 290) in real-world clinical practice, which is not in accordance with the recommended guidelines [1]. Furthermore, there was a lack of treatment escalation for patients with inadequately controlled disease, which demonstrates further deviation from the recommended international guidelines.

Recent Advancements in Therapies for CSU

With the emergence of new therapies for CSU, the treatment landscape for patients with CSU is anticipated to improve [45, 46]. Clinical trials on new therapies in development, such as dupilumab, a monoclonal antibody that blocks interleukin-4Ra, now approved for the treatment of CSU and remibrutinib, a Bruton's tyrosine kinase inhibitor, have shown potential in treating patients with CSU who remain symptomatic despite treatment with H1-AH [45–47].

Advancements in the treatment options and elimination of barriers to treatment escalation will contribute to improved disease control and management for patients.

This multinational real-world evidence study presents patients' perspectives of CSU, which contributes to the development of more effective management strategies for CSU, particularly for those with inadequately controlled disease. However, it is essential to acknowledge the limitations of online surveys, for example, participation was confined to those with internet access, potentially introducing biases. An element of selection bias must be considered, given the observation of a comparatively high representation of patients with inadequately controlled disease within the studied population, implying a more difficult-to-treat patient cohort. Moreover, patients' responses were reliant on their perceptions and memories, making them susceptible to recollection bias. Furthermore, physicians and patients were recruited separately in the Urticaria Voices study [23], that is, the physicians did not necessarily treat the patient population who participated in this survey.

CONCLUSIONS

The Urticaria Voices study provides significant insights into patients' perspectives of treatment patterns, extent of disease control, disease burden, treatment satisfaction, and expectations of patients with CSU. Despite antihistamine switching and up-dosing, most patients (84%) on antihistamines remained symptomatic. Approximately one-quarter of those were escalated to more effective treatments such as biologics. The results suggest a need for improved treatment options for patients with inadequately controlled CSU to provide sustained symptom relief. The emergence of new treatment options will potentially benefit patients with CSU who have not responded to conventional treatments. By addressing the treatment gaps and controlling symptoms, the disease burden and HRQoL can be improved, potentially leading to long-term remission for patients with CSU.

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Declarations

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Ethical Approval. This study was conducted in accordance with legal and regulatory requirements and fulfilled the criteria of the "European Network of Centers for Pharmacoepidemiology and Pharmacovigilance (ENCePP) study" and followed the "ENCePP Code of Conduct," as previously described [23]. All participants of the survey provided written informed consent forms, approved by the corresponding institutional review board/ethics committee (IRB/IEC) and in accordance with the Declaration of Helsinki and other relevant regulatory requirements. An exemption from ongoing oversight was obtained from the Pearl IRB, who reviewed and granted international approval of an exemption [23]..

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