

Full English text available at  
[www.actasdermo.org](http://www.actasdermo.org)

## CONSENSUS DOCUMENT

# A Review of the Latest Recommendations on the Management of Chronic Urticaria: A Multidisciplinary Consensus Statement From Andalusia, Spain<sup>☆</sup>



M. Alcántara Villar,<sup>a</sup> J.C. Armario Hita,<sup>b</sup> S. Cimbollek,<sup>c</sup> M.D. Fernández Ballesteros,<sup>d</sup> M. Galán Gutiérrez,<sup>e</sup> C. Hernández Montoya,<sup>f</sup> M.Á. Lara-Jiménez,<sup>g</sup> J.J. Pereyra Rodríguez,<sup>h</sup> J.M. Vega Chicote,<sup>i</sup> R. Ruiz-Villaverde<sup>j,\*</sup>

<sup>a</sup> Unidad de Alergología, Hospital Universitario Médico-Quirúrgico de Jaén, Jaén, Spain

<sup>b</sup> Unidad de Dermatología, Hospital Universitario de Puerto Real, Universidad de Cádiz, Cádiz, Spain

<sup>c</sup> Unidad de Gestión Clínica de Alergología, Hospital Virgen del Rocío de Sevilla, Sevilla, Spain

<sup>d</sup> Unidad de Gestión Clínica de Dermatología, Hospital Regional Universitario de Málaga, Málaga, Spain

<sup>e</sup> Servicio de Dermatología, Hospital Universitario Reina Sofía, Córdoba, Spain

<sup>f</sup> Servicio de Dermatología, Hospital de Poniente, Almería, Spain

<sup>g</sup> Unidad de Alergología, Hospital Universitario San Cecilio, Granada, Spain

<sup>h</sup> Unidad de Gestión Clínica de Dermatología Hospital Universitario Virgen del Rocío, Sevilla, Spain

<sup>i</sup> Unidad de Gestión Clínica de Alergología, Hospital Regional Universitario de Málaga, Málaga, Spain

<sup>j</sup> Servicio de Dermatología, Hospital Universitario San Cecilio, Granada, Spain

Received 23 January 2019; accepted 26 April 2019

### KEYWORDS

Chronic urticaria;  
Quality of life;  
Patient care  
management;  
Treatment algorithm

**Abstract** Chronic urticaria is a difficult-to-treat skin disorder that has a major impact on patient quality of life. The latest update of the European guideline on the management of urticaria was published in 2018. In this consensus statement, produced in the autonomous community of Andalusia, Spain, we describe a multidisciplinary approach for applying the new treatment algorithm proposed by the European guideline in our region.

© 2019 AEDV. Published by Elsevier España, S.L.U. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

<sup>☆</sup> Please cite this article as: Alcántara Villar M, Armario Hita JC, Cimbollek S, Fernández Ballesteros MD, Galán Gutiérrez M, Hernández Montoya C et al. Revisión de las últimas novedades en el manejo del paciente con urticaria crónica: Consenso multidisciplinar de la comunidad autónoma de Andalucía. Actas Dermosifiliogr. 2020;111:222–228.

\* Corresponding author.

E-mail address: [ricardo.ruiz.villaverde.sspa@juntadeandalucia.es](mailto:ricardo.ruiz.villaverde.sspa@juntadeandalucia.es) (R. Ruiz-Villaverde).

**PALABRAS CLAVE**

Urticaria crónica;  
Calidad de vida;  
Manejo del paciente;  
Algoritmo de  
tratamiento

## Revisión de las últimas novedades en el manejo del paciente con urticaria crónica: Consenso multidisciplinar de la comunidad autónoma de Andalucía

**Resumen** La urticaria crónica es una enfermedad de la piel difícil de tratar que presenta un alto impacto negativo en la calidad de vida de los pacientes. La última actualización de la guía Europea para el manejo del paciente con urticaria se publicó en 2018. Con el actual contexto, presentamos un enfoque multidisciplinar para la aplicación del nuevo algoritmo de tratamiento propuesto por la guía en el territorio español, más concretamente, en la comunidad autónoma de Andalucía.

© 2019 AEDV. Publicado por Elsevier España, S.L.U. Este es un artículo Open Access bajo la licencia CC BY-NC-ND (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

## Introduction

Chronic urticaria (CU) is a serious skin disorder characterized by the spontaneous appearance of hives with or without angioedema that last for at least 6 weeks.<sup>1</sup> The disease affects an estimated 0.5% to 1% of the general population and has an annual incidence of 1.4%.<sup>2</sup> In Europe, over 5 million people have persistent urticaria symptoms.<sup>3</sup>

CU is associated with depression, stress, and sleep problems.<sup>4-6</sup> Because of its negative impact on patient quality of life and health care costs, it is essential to provide patients with rapid and complete relief from symptoms and to initiate correct treatment as promptly as possible.<sup>6,7</sup>

In view of the significant regulatory variability in our region, the high costs generated by CU, and the considerable impact this disease has on quality of life, there is a need for consensus on the diagnosis, management, and treatment of CU to unify practice in hospitals and among specialists. The aim of this study was to produce an updated consensus statement adapted to the routine care of CU patients in Andalusia aimed at standardizing treatment and management strategies across hospitals in the region and among different dermatology and allergology specialists.

## Methods

To draw up the consensus statement, a review of the literature published in MEDLINE between 2000 to 2018 was conducted using combinations of the following key words: "angioedema", "urticaria", "CU", "nonresponder", "management", "ciclosporin", "activity", "antihistamines", "omalizumab", "CSU", "symptoms", "diagnosis", "comorbidities", "tools", "guidelines", and "Andalusia". A collaborative meeting, sponsored by Novartis Farmacéutica SA, was then organized in Antequera, Andalusia to bring together a multidisciplinary panel of experts in the management and treatment of CU. The panel consisted of 4 allergologists and 6 dermatologists. The 10 experts discussed and reached consensus on all the aspects contained in this document using the Metaplan method. The results are expressed in percentages.

The Metaplan method is an interactive, participative approach in which participants collaborate to seek improvements or solutions to a situation they have in common.<sup>8</sup> Sessions are led by a moderator who guides the discussions to ensure achievement of predefined goals. Conversations

are generated using cards attached to pinboards visible to all participants. The idea is that by analyzing the information presented and working together, in the same place, the group reaches a consensus on the different issues posed.

## Causative and Aggravating Factors and Comorbidities

Chronic urticaria has been associated with numerous causative and aggravating factors, including physical stimuli, infectious agents, drugs, and even physical and emotional stress.<sup>1</sup>

In agreement with the literature,<sup>9-16</sup> the following comorbidities were listed as being associated with chronic spontaneous urticaria (CSU): anxiety, depression, atopic dermatitis, asthma, rhinoconjunctivitis, inducible CU, and impaired work performance. Aggravating factors mentioned included use of nonsteroidal anti-inflammatory drugs (NSAIDs), stress, viral infections, and alcohol consumption.

## Diagnosis

According to the latest update of the European clinical guidelines on CU,<sup>1</sup> the diagnostic workup should be simple, useful, cost-effective, and based on patient history and physical examination. The only additional tests recommended are a differential blood count and one of the 2 acute-phase factors: erythrocyte sedimentation rate (ESR) or C-reactive protein (CRP). History taking should focus on clinical factors associated with a poor prognosis, such as angioedema, inducible CU, association or worsening with NSAIDs, inadequate treatment response, and previous treatment failure.

Overall, 100% of the members of the expert panel considered that history taking and physical examination were essential for the diagnostic workup; 70% considered that a differential blood count and CRP or ESR testing were essential, and 90% considered that provocation tests were unnecessary (Table 1).

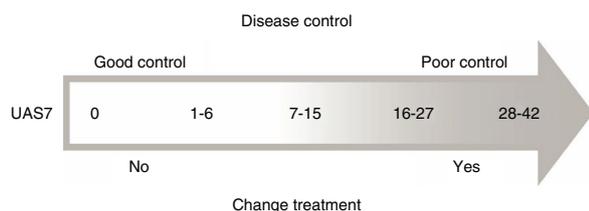
## Tools for Measuring CSU and Quality of Life

Different studies have reported diagnostic delays in CSU and failure to use validated scales to classify patients and assess impact on quality of life and daily activities.<sup>17,18</sup> The Euro-

**Table 1** Routine Tests for Patients With Chronic Spontaneous Urticaria.

Tests/Expert C/Essential Tests	Expert Consensus, %
History	100
Physical examination	100
Blood count with differential	70
CRP or ESR	70
Nonessential tests	
Autologous serum skin test	50
Specific provocation	90
Other (e.g., parasite infection)	30

Abbreviations: CRP, C-reactive protein; ESR, erythrocyte sedimentation rate.



**Figure 1** Association between Urticaria Activity Score 7 (UAS7), disease control, and changes to treatment. The experts agreed that a UAS7 score of over 7 indicates poor disease control and that the patient should be switched to another treatment.

pean guidelines recommend the use of activity and quality of life scales during initial clinical assessment, after starting or changing treatment, and in patients with poor disease control.<sup>1</sup>

The Urticaria Activity Score 7 (UAS7), which assesses aspects of the patient's disease over the preceding 7 days, is recommended for evaluating disease activity in CSU.<sup>1,19,20</sup> The Spanish versions of the UAS and UAS7 were validated for diagnostic and follow-up use in the EVALUAS study.<sup>21</sup>

Other tools are the Angioedema Activity Score<sup>22</sup> and, to quantify disease control in all types of CU (spontaneous or inducible), the Urticaria Control Test.<sup>22,23</sup>

Ninety percent of the experts considered that the UAS7 was essential for monitoring disease activity and control in patients with CSU, while a respective 50% and 40% considered that the Angioedema Activity Score and Urticaria Control Test were essential (Appendix B, Appendix, Table 1).

The UAS7 is a self-administered questionnaire and correlates well with the Dermatology Life Quality Index (DLQI).<sup>24,25</sup>

According to the European guidelines, the goal of treatment should be to achieve complete control of physical signs and symptoms without compromising patient safety and quality of life.<sup>1</sup>

The experts agreed that a UAS7 score of 7 or under indicated good disease control, while a score of over 7 indicated poor control and the need to switch treatment (Fig. 1).

Following guideline recommendations, a full assessment must include evaluation of the impact of CSU on patient quality of life. The only questionnaire currently available for specifically measuring quality of life in patients with CU

is the Chronic Urticaria Quality of Life Questionnaire (CU-Q2oL) (Fig. 2).

Thirty percent of the experts considered that the DLQI was essential for assessing quality of life in patients with CSU; 60% considered that the CU-Q2oL was necessary in certain cases, and another 60% considered that the Angioedema Quality of Life Questionnaire was never necessary.

Finally, 80% of experts did not consider it necessary to assess disease activity, quality of life, or disease control at every visit.

### Association With Other Types of Urticaria

Several studies have shown an association between CU and different forms of inducible urticaria, highlighting the importance of managing triggers, as patients with associated angioedema or physical or inducible urticaria appear to respond worse to treatment.<sup>26,27</sup>

The experts agreed that CSU was associated with inducible urticaria in 45% of cases and that delayed pressure urticaria was very common. They also agreed that many patients with CSU subsequently develop inducible urticaria (e.g., cholinergic or solar urticaria). The most common inducible forms of urticaria seen in clinical practice are dermatographism, solar urticaria, and cholinergic urticaria in patients with atopic dermatitis.

According to data published to date, approximately 40% of patients with CU develop angioedema.<sup>26,28</sup>

### Treatment

Treatment of CSU consists of avoidance of identified triggers and administration of drugs to control symptoms.<sup>1</sup> The guidelines recommend second-generation H<sub>1</sub> antihistamines as first-line therapy for symptom control in CSU.<sup>1,20</sup> Approximately 50% of patients, however, remain symptomatic despite treatment with antihistamines.<sup>22</sup> The recommended second-line strategy is to increase the standard dose of antihistamines up to 4-fold.<sup>1</sup>

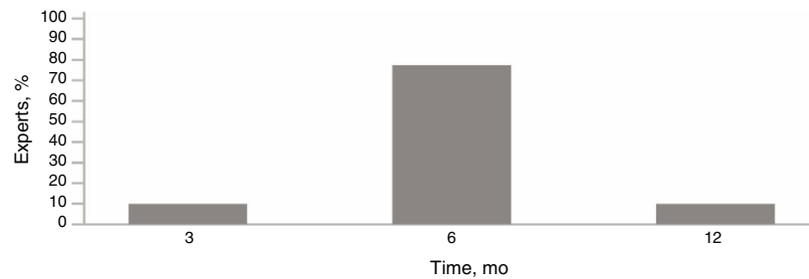
If this fails, omalizumab and ciclosporin A can be added as third- and fourth-line options respectively. The guidelines recommend a short course of oral corticosteroids lasting no longer than 10 days for patients who experience exacerbations.<sup>1</sup>

The experts were asked to rate their level of agreement/disagreement with the proposed treatment algorithm in the updated European CU guidelines on a scale of 1 to 10, where 1 corresponded to completely disagree and 10 to completely agree; 50% gave a score of 9/10 (complete agreement), 40% gave a score of 8/10, and 10% gave a score of 7/10 (Appendix B, Table 2).

### Antihistamines

First-generation H<sub>1</sub> antihistamines are not recommended for CU as they have poor selectivity, penetrate the blood-brain barrier, and have a high number of adverse effects.<sup>29-32</sup>

All 10 experts considered that second-generation antihistamines used continuously were the first-line therapy for



**Figure 2** Continuation of treatment with omalizumab after achievement of treatment goal. Eighty percent of the experts would continue the treatment for 6 months, 10% for 3 to 5 months, and 10% for 9 to 12 months.

CU, followed by antihistamines at 2 or 4 times the standard dose as second-line therapy.

Their decision was based on guideline recommendations and on data from several studies that have demonstrated the effectiveness and safety of H<sub>1</sub> antihistamines administered at doses 4 times higher than conventional doses.<sup>33–36</sup> The results of one Spanish study show that 74% of patients responded to H<sub>1</sub> antihistamines administered in accordance with the guideline recommendations.<sup>37</sup> The same study found that angioedema, antithyroid antibodies, and the autologous serum skin test were all significantly associated with a lack of response to antihistamines.

All the experts agreed on the need to switch treatments in nonresponders to H<sub>1</sub> antihistamines but they used a shorter dose-escalation period than that recommended in the European algorithm,<sup>1</sup> which they viewed as too long. In ideal circumstances, 70% of the experts would wait for 0 to 4 weeks before changing a first-line treatment and 60% would wait for 0 to 4 weeks before changing a second-line treatment (Appendix B, Tables 3 and 4).

## Omalizumab

The efficacy and safety of omalizumab for the treatment of CSU was demonstrated in the pivotal phase III clinical trials ASTERIA I,<sup>38</sup> ASTERIA II,<sup>39</sup> and GLACIAL,<sup>40,41</sup> which, among other measures, used UAS7 and DLQI scores to assess efficacy.

Omalizumab has also been shown to be effective and safe in real-world observational studies of patients with CSU,<sup>42–47</sup> including a retrospective, descriptive study of 110 patients treated with omalizumab in 9 Spanish hospitals.<sup>47</sup> Overall, 81.8% of the patients achieved a complete or significant response and just 7.2% showed no response. In addition, 60% remained asymptomatic during treatment with omalizumab only. No serious adverse effects were reported. The authors concluded that omalizumab was an effective treatment for all subtypes of urticaria and may be the treatment of choice for antihistamine-resistant patients.<sup>47</sup>

The recent results of the XTEND-CIU study on the use of omalizumab in CSU for over 6 months showed that continued treatment prevented recurrences, improved quality of life, and reduced the number of angioedema episodes.<sup>48</sup> The authors concluded that long-term treatment with omalizumab was effective and safe.

Drawing on the available evidence and the European guideline recommendations,<sup>1</sup> 100% of the experts agreed

with the guideline recommendation that omalizumab 300 mg every 4 weeks should be the third-line option for patients with CSU as it has demonstrated efficacy and safety and is approved for use in this setting.

Eighty percent of the experts agreed that a patient could be considered a nonresponder if he or she did not achieve disease control after 6 months of treatment with omalizumab 300 mg every 4 weeks. The remaining 20% were of the opinion that this would be the case if there was no response after 6 months and a step-up regimen of 300–450–600 mg every 4 weeks.

When discontinuing omalizumab treatment, 90% of the experts believed it was better to reduce the dose by 150 mg every 4 weeks.

The phase IIIb OPTIMAL trial N\*\*\*CT 02161562 found that almost two-thirds of patients achieved good control after 6 months of treatment with omalizumab 300 mg.<sup>49,50</sup> Following a period of treatment withdrawal, almost 90% of patients with previously well controlled CSU regained effective control of symptoms after 12 weeks of retreatment with omalizumab.

Metz et al.<sup>51</sup> showed that patients with CU gained complete and rapid symptom relief after reinitiation of omalizumab and withdrawal of antihistamines and did not experience any relevant adverse effects.

Ninety percent of the experts considered that patients could be retreated with omalizumab and 100% believed that it could be reintroduced at the same dose as the starting dose.

## Ciclosporin

The European guidelines position ciclosporin as the fourth-line treatment for nonresponders to omalizumab.<sup>1</sup> According to its summary of product characteristics, ciclosporin is approved for the treatment of psoriasis and atopic dermatitis but not CSU.<sup>52</sup> Its use in CSU is based on data from randomized clinical trials comparing ciclosporin with placebo and analyzing its use in combination with antihistamines.<sup>53–55</sup> It should be noted that ciclosporin has extensive adverse effects and can be used safely for up to 2 years. It is absolutely contraindicated in pregnancy and in patients with uncontrolled hypertension or abnormal kidney function.

Most of the experts stated that they would use ciclosporin at a dose of 2.5 to 5 mg/kg to treat CSU in omalizumab-resistant patients. As routine tests, they mentioned a

differential blood count, biochemistry, and kidney and liver function tests.

## Corticosteroids

Guidelines recommend short-term tapering courses of corticosteroids to treat severe CU exacerbations, particularly in patients with concomitant angioedema due to the risk of secondary respiratory difficulty.<sup>1,56,57</sup>

A short course of oral corticosteroids can help reduce disease duration or activity in patients with acute urticaria or acute CSU exacerbations.<sup>58,59</sup>

The experts agreed that they would use a short, 10-day course of corticosteroids to treat exacerbations or acute episodes and apply a tapering schedule before switching to another treatment.

## Conclusions

Health care professionals treating patients with CU have access to clinical practice guidelines containing definitions, diagnostic criteria, and treatment and follow-up recommendations. In this study we found that current practices in the Andalusian health care system are very much in line with the guideline recommendations.

A multidisciplinary, guideline-driven approach to the management of patients with urticaria will help optimize health care delivery, improve quality of care and patient quality of life, and reduce the socioeconomic costs associated with suboptimal management.

## Conflicts of interest

All the authors of this manuscript declare that they have received consultancy fees from Novartis.

## Appendix A. Supplementary data

Supplementary material related to this article can be found, in the online version, at doi:<https://doi.org/10.1016/j.adengl.2020.03.008>.

## References

- Zuberbier T, Aberer W, Asero R, Abdul Latiff AH, Baker D, Ballmer-Weber B, et al. The EAACI/GA<sup>2</sup>LEN/EDF/WAO Guideline for the definition, classification, diagnosis and management of urticaria. The 2017 revision and update. *Allergy*. 2018;73:1393–414.
- Bernstein JA, Lang DM, Khan DA, Craig T, Dreyfus D, Hsieh F, et al. The diagnosis and management of acute and chronic urticaria: 2014 update. *J Allergy Clin Immunol*. 2014;133:1270–7.
- Maurer M, Weller K, Bindslev-Jensen C, Giménez-Arnau A, Bousquet PJ, Bousquet J, et al. Unmet clinical needs in chronic spontaneous urticaria. A GA<sup>2</sup>LEN task force report. *Allergy*. 2011;66:317–30.
- Dias GA, Pires GV, Valle SO, Dortas SD, Levy S, Franca AT, et al. Impact of chronic urticaria on the quality of life of patients followed up at a university hospital. *An Bras Dermatol*. 2016;91:754–9.
- Aguilar-Hinijosa NK, Segura-Medez NH, Lugo-Reyes SO. Correlación de la gravedad de la urticaria crónica y la calidad de vida. *Rev Alerg Méx*. 2012;59:180–6, 14.
- Maurer M, Zuberbier T, Siebenhaar F, Krause K. Chronic urticaria - What does the new guideline tell us? *J Dtsch Dermatol Ges*. 2018;16:584–93.
- Giménez-Arnau AM, Vilar Alejo J, Moreno Ramirez D. Manejo diagnóstico y terapéutico de la urticaria crónica por el dermatólogo y papel del servicio de dermatología. *Actas Dermosifiliogr*. 2015;106:528–32.
- Schnelle E. The Metaplan-Method: Communication tools for planning and learning groups. Quickborn: Metaplan-GmbH; 1979.
- Varghese R, Rajappa M, Chandrashekar L, Kattimani S, Archana M, Munisamy M, et al. Association among stress, hypocortisolism, systemic inflammation, and disease severity in chronic urticaria. *Ann Allergy Asthma Immunol*. 2016;116:344–8, e341.
- Barbosa F, Freitas J, Barbosa A. Chronic idiopathic urticaria and anxiety symptoms. *J Health Psychol*. 2011;16:1038e1047.
- Gregoriou S, Rigopoulos D, Katsambas A, Katsarou A, Papaioannou D, Gkouvi A, et al. Etiologic aspects and prognostic factors of patients with chronic urticaria: nonrandomized, prospective, descriptive study. *J Cutan Med Surg*. 2009;13:198–203.
- Engin B, Uguz F, Yilmaz E, Ozdemir M, Mevlitoglu I. The levels of depression, anxiety and quality of life in patients with chronic idiopathic urticaria. *J Eur Acad Dermatol Venereol*. 2008;22:36e40.
- Shiple D, Ormerod AD. Drug-induced urticaria. Recognition and treatment. *Am J Clin Dermatol*. 2001;2:151–8.
- Mathelier-Fusade P. Drug-induced urticarias. *Clin Rev Allergy Immunol*. 2006;30:19–23.
- Kowalski ML, Woessner K, Sanak M. Approaches to the diagnosis and management of patients with a history of nonsteroidal anti-inflammatory drug-related urticaria and angioedema. *J Allergy Clin Immunol*. 2015;136:245–51.
- Imbalzano E, Casciaro M, Quartuccio S, Minciullo PL, Cascio A, Calapai G, et al. Association between urticaria and virus infections: a systematic review. *Allergy Asthma Proc*. 2016;37:18–22.
- Weller K, Maurer M, Grattan C, Nakonechna A, Abuzakouk M, Berard F, et al. ASSURE-CSU: a real-world study of burden of disease in patients with symptomatic chronic spontaneous urticaria. *Clin Transl Allergy*. 2015;5:29.
- Thomsen SF, Pritzler EC, Anderson CD, Vaugelade-Baust N, Dodge R, Dahlborn AK, et al. Chronic urticaria in the real-life clinical practice setting in Sweden, Norway and Denmark: baseline results from the non-interventional multicentre AWARE study. *J Eur Acad Dermatol Venereol*. 2017;31:1048–55.
- Balañá M, Valero A, Giménez Arnau A, Ferrer M, Jauregui I, Ballesteros C. Validation of the Spanish version of the Urticaria Activity Score (UAS) and its use over one week (UAS7). *Value Health*. 2015;18:A426.
- Ferrer M, Bartra J, Giménez Arnau A, Jauregui I, Labrador-Horrillo M, Ortiz de Frutos J, et al. Management of urticaria: not too complicated, not too simple. *Clin Exp Allergy*. 2015;45:731–43.
- Valero A, Ferrer M, Giménez-Arnau AM, Jauregui I, Ballesteros C. Utilidad clínica de la versión española de los cuestionarios Urticaria Activity Score y Urticaria Activity Score-7 para evaluar la urticaria crónica espontánea. 44th Congreso Nacional de Dermatología y Venereología (AEDV), Zaragoza (España), del 1al 4 de junio de 2016.
- Weller K, Viehmann K, Bräutigam M, Krause K, Siebenhaar F, Zuberbier T, et al. Management of chronic spontaneous urticaria in real life in accordance with the guidelines? A cross-sectional physician-based survey study. *J Eur Acad Dermatol Venereol*. 2013;27:43–50.
- García-Díez I, Curto-Barredo L, Weller K, Pujol RM, Maurer M, Giménez-Arnau AM. Cross-cultural adaptation of the Urticaria

- Control Test from German to Castilian Spanish. *Actas Dermosifiliogr.* 2015;106:746–52.
24. Lennox RD, Leahy MJ. Validation of the Dermatology Life Quality Index as an outcome measure for urticaria-related QoL. *Ann Allergy Asthma Immunol.* 2004;93:142–6.
  25. Stull D, McBride D, Houghton K, Georgiou P, Zuberbier T, Grattan C, et al. Measuring patient severity in chronic spontaneous/idiopathic urticaria (CSU/CIU) as categorical health states: efficient and informative? European Academy of Allergy and Clinical Immunology (EAACI) Congress, Copenhagen (Dinamarca), del 7 al 11 de junio de 2014.
  26. Magen E, Mishal J, Zeldin Y, Schlesinger M. Clinical and laboratory features of antihistamine-resistant chronic idiopathic urticaria. *Allergy Asthma Proc.* 2011;32:460–6.
  27. Kozel M, Mekkes J, Bossuyt P, Bos J. Natural course of physical and chronic urticaria and angioedema in 220 patients. *J Am Acad Dermatol.* 2001;45:387–91.
  28. Zuberbier T, Balke M, Worm M, Edenharter G, Maurer M. Epidemiology of urticaria: a representative cross-sectional population survey. *Clin Exp Dermatol.* 2010;35:869–73.
  29. Church MK, Maurer M, Simons FE, Bindslev-Jensen C, van Cauwenberge P, Bousquet J, et al. Risk of first-generation H1-antihistamines: a GA2LEN position paper. *Allergy.* 2010;65:459–66.
  30. Simons FER, Simons KJ. Histamine and H1-antihistamines: Celebrating a century of progress. *J Allergy Clin Immunol.* 2011;128:1139–50, e4.
  31. Finkle WD, Adams JL, Greenland S, Melmon KL. Increased risk of serious injury following an initial prescription for diphenhydramine. *Ann Allergy Asthma Immunol.* 2002;89:244–50.
  32. Sen A, Akin A, Craft KJ, Canfield DV, Chaturvedi AK. First-generation H1 antihistamines found in pilot fatalities of civil aviation accidents, 1990-2005. *Aviat Sp Environ Med.* 2007;78(5 1):514–22.
  33. Staevska M, Popov T, Kralimarkova T, Lazarova C, Kraeva S, Popova D, et al. The effectiveness of levocetirizine and desloratadine in up to 4 times conventional doses in difficult-to-treat urticaria. *J Allergy Clin Immunol.* 2010;125:676–82.
  34. Kibsgaard L, Lefevre AC, Deleuran M, Vestergaard C. A case series study of eighty-five chronic spontaneous urticarial patients referred to a tertiary care center. *Ann Dermatol.* 2014;26:73–8.
  35. Kameyoshi Y, Tanaka T, Mihara S, Takahagi S, Niimi N, Hide M, et al. Increasing the dose of cetirizine may lead to better control of chronic idiopathic urticaria: An open study of 21 patients. *Br J Dermatol.* 2007;157:803–4.
  36. Ferrer M, Sastre J, Jauregui I, Dávila I, Montoro J, del Cuvillo A, et al. Effect of antihistamine up-dosing in chronic urticaria. *J Investig Allergol Clin Immunol.* 2011;21 suppl 3:34–9.
  37. Marín-Cabañas I, Berbegal-de Gracia L, de León-Marrero F, Hispán P, Silvestre JF. Manejo de la urticaria crónica espontánea en la práctica clínica diaria siguiendo las indicaciones de la Guía EAACI/GA(2)LEN/EDF/WAO. *Actas Dermosifiliogr.* 2017:346–53.
  38. Saini SS, Bindslev-Jensen C, Maurer M, Grob JJ, Bülbül Baskan E, Bradley MS, et al. Efficacy and safety of omalizumab in patients with chronic idiopathic/spontaneous urticaria who remain symptomatic on H1 antihistamines: a randomized, placebo-controlled study. *J Invest Dermatol.* 2015;135:67–75.
  39. Maurer M, Rosén K, Hsieh HJ, Saini S, Grattan C, Giménez-Arnau A, et al. Omalizumab for the treatment of chronic idiopathic or spontaneous urticaria. *N Engl J Med.* 2013;368:924–35.
  40. Kaplan A, Ledford D, Ashby M, Canvin J, Zazzali JL, Conner E, et al. Omalizumab in patients with symptomatic chronic idiopathic/spontaneous urticaria despite standard combination therapy. *J Allergy Clin Immunol.* 2013;132:101–9.
  41. Casale TB, Bernstein JA, Maurer M, Saini SS, Trzaskoma B, Chen H, et al. Similar efficacy with omalizumab in chronic idiopathic/spontaneous urticaria despite different background therapy. *J Allergy Clin Immunol Pract.* 2015;3:743–50, e1.
  42. Clark JJ, Secrest AM, Hull CM, Eliason MJ, Leiferman KM, Fleich GJ, et al. The effect of omalizumab dosing and frequency in chronic idiopathic urticaria: retrospective chart review. *J Am Acad Dermatol.* 2016;74:1274–6.
  43. Giménez-Arnau A, Velasco M, Armario Hita JC, Labrador-Horrillo M, Silvestre-Salvador JF. Omalizumab: what benefits should we expect? *Eur J Dermatol.* 2016;26:340–4.
  44. Ghazanfar MN, Sand C, Thomsen SF. Effectiveness and safety of omalizumab in chronic spontaneous or inducible urticaria: evaluation of 154 patients. *Br J Dermatol.* 2016;175:404–6.
  45. Sussman G, Hébert J, Barron C, Bian J, Caron-Guay RM, Laflamme S, et al. Real-life experiences with omalizumab for the treatment of chronic urticaria. *Ann Allergy Asthma Immunol.* 2014;112:170–4.
  46. Bernstein JA, Kavati A, Tharp MD, Ortiz B, MacDonald K, Denhaerynck K, et al. Effectiveness of omalizumab in adolescent and adult patients with chronic idiopathic/spontaneous urticaria: a systematic review of 'real-world' evidence. *Expert Opin Biol Ther.* 2018;18:425–48.
  47. Labrador-Horrillo M, Valero A, Velasco M, Jáuregui I, Sastre J, Bartra J, et al. Efficacy of omalizumab in chronic spontaneous urticaria refractory to conventional therapy: analysis of 110 patients in real-life practice. *Expert Opin Biol Ther.* 2013;13:1225–8.
  48. Maurer M, Kaplan A, Rosén K, Holden M, Iqbal A, Trzaskoma BL, et al. The XTEND-CIU study: Long-term use of omalizumab in chronic idiopathic urticaria. *J Allergy Clin Immunol.* 2018;141(March):1138–9, e7.
  49. Sussman G, Hébert J, Gulliver W, Lynde C, Yang WH, Chambernoit O et al. Design and rationale of the OPTIMA study: retreatment or step-up therapy with omalizumab in patients with chronic idiopathic/spontaneous urticaria (CIU/CSU). Fall Clinical Dermatology Conference, Las Vegas (EE. UU), del 12 al 15 de octubre de 2017.
  50. Giménez-Arnau AM. Omalizumab for treating chronic spontaneous urticaria: an expert review on efficacy and safety. *Expert Opin Biol Ther.* 2017;17:375–85.
  51. Metz M, Ohanyan T, Church MK, Maurer M. Omalizumab is an effective and rapidly acting therapy in difficult-to-treat chronic urticaria: a retrospective clinical analysis. *J Dermatol Sci.* 2014;73:57–62.
  52. Clciclosporina. Ficha técnica. Available from: <https://cima.aemps.es/cima/publico/detalle.html?nregistro=60320>.
  53. Grattan CE, O'Donnell BF, Francis DM, Niimi N, Barlow RJ, Seed PT, et al. Randomized double-blind study of cyclosporin in chronic «idiopathic» urticaria. *Br J Dermatol.* 2000;143:365–72, 39.
  54. Vena G, Cassano N, Colombo D, Peruzzi E, Pigatto P, Group N-I-S. Cyclosporine in chronic idiopathic urticaria: a double-blind, randomized, placebo-controlled trial. *J Am Acad Dermatol.* 2006;55:705–9.
  55. Kulthanan K, Chaweekulrat P, Komoltri C, Hunnangkul S, Tuchinda P, Chularojanamontri L, et al. Cyclosporine for chronic spontaneous urticaria: a meta-analysis and systematic review. *J Allergy Clin Immunol Pract.* 2017;17:30542–51.
  56. Zuberbier T, Asero R, Bindslev-Jensen C, Walter Canonica G, Church MK, Giménez-Arnau A, et al. EAACI/GA(2)LEN/EDF/WAO guideline: management of urticaria. *Allergy.* 2009;64:1427–43.
  57. Zuberbier T, Aberer W, Asero R, Bindslev-Jensen C, Brzoza Z, Canonica GW, et al. The EAACI/GA(2) LEN/EDF/WAO

- guideline for the definition, classification, diagnosis, and management of urticaria: the 2013 revision and update. *Allergy*. 2014;69:868–87.
58. Zuberbier T, Ifflander J, Semmler C, Henz BM. Acute urticaria: clinical aspects and therapeutic responsiveness. *Acta Derm Venereol*. 1996;76:295–7.
59. Asero R, Tedesch A. Usefulness of a short course of oral prednisone in antihistamine-resistant chronic urticaria: a retrospective analysis. *J Investig Allergol Clin Immunol*. 2010;20:386–90.