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Diagnosis and management of chronic spontaneous urticaria

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About the Expert



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As well as his work at the ADHB, Pete also works in private practice at Auckland Allergy & Eczema Clinic (formerly Auckland Allergy Clinic).

Abbreviations used in this review

ASCIA = Australasian Society of Clinical Immunology and Allergy

CSU = Chronic spontaneous urticaria

CIU = Chronic inducible urticaria

DLQI = Dermatology Life Quality Index

HRQoL = Health-Related Quality of Life

IgE = Immunoglobulin E

ISS = Itch Severity Score

PROs = Patient-reported outcomes

UAS7 = Urticaria Activity Score 7

UCT = Urticaria Control Test

ABOUT RESEARCH REVIEW

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This review is intended as an educational resource for healthcare professionals. The review presents relevant background information on chronic spontaneous urticaria (CSU) and focuses on pharmacologic management strategies. In particular, it highlights the use of omalizumab in patients with CSU who remain symptomatic despite H1 antihistamine treatment. This review is supported by an educational grant from Novartis.

CSU background

Chronic spontaneous urticaria (CSU), formally named chronic idiopathic urticaria, is characterised by itchy wheals (hives) which arise spontaneously for at least 6 weeks, with or without angioedema, and that have no apparent external trigger.¹⁻⁵

The wheals are typically characterised by three features:^{1,2}

- Swelling and erythema;
- An itching or burning sensation; and
- A transient nature, with the skin returning to normal within 1–24 hours.

Angioedema is characterised by:^{1,2}

- A sudden, pronounced erythematous or skin-coloured swelling of the lower dermis and subcutis;
- Frequent involvement below mucous membranes;
- Sometimes pain rather than itching; and
- A longer time to resolve than the wheals (up to 72 hours).

CSU differs from the inducible (physical) urticarias, where lesions are induced by physical stimuli such as scratching (dermographism), cold (cold urticaria), sunlight (solar urticaria), increased body heat (cholinergic urticaria), pressure (delayed pressure urticaria) or vibration.²

CSU may be self-limited in some, but not all, patients. In a population-based study, CSU resolved within 12 weeks in about half of the patients.⁶ However, it lasted for about 1 year in 20% of patients, and more than 5 years in 11% of patients.⁶ In another study, the duration of CSU was >5 years in 14% of the patients.⁷

CSU has a life-time prevalence rate of around 1.8% of the general population, with an annual prevalence rate in adults of 0.02-0.8% in European countries.^{6, 8, 9} It is more common in females than males.⁹

Pathogenesis of CSU

The pathogenesis of CSU largely involves the activation of cutaneous mast cells, with histamine and other mediators, such as platelet-activating factor and cytokines, being released (**Figure 1**).^{1,2} This results in wheal formation, vasodilatation and erythema. Endothelial cell adhesion molecules, neutrophils and/or eosinophils, and macrophages also become involved.²

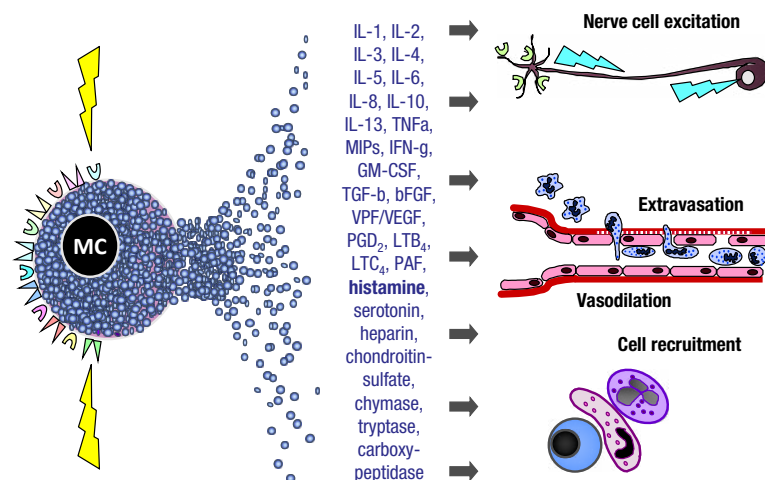


Figure 1. Central role of mast cells in the pathogenesis of urticaria

FGF = fibroblast growth factor; GM-CSF = granulocyte-macrophage colony-stimulating factor; IFN = interferon; IL = interleukin; LTB $_2$ = leukotriene B $_2$; LTC $_4$ = leukotriene C $_4$; MC = mast cell; MIPs = macrophage inflammatory proteins; PAF = platelet activating factor; PGD $_2$ = prostaglandin D $_2$; TGF = transforming growth factor; TNF = tumour necrosis factor; VPF/VEGF = vascular permeability factor/vascular endothelial growth factor.



Type I and type II autoimmune responses have been postulated to be involved in the pathogenesis of CSU.¹⁰ In type I autoimmune responses (also called autoallergy), immunoglobulin E (IgE) on mast cells and basophils binds to soluble autoantigens and causes the release of vasoactive mediators (e.g. histamine). In the more traditional type II autoimmune reaction, immunoglobulin G (IgG) autoantibodies bind to IgE, or its receptor (FcεRI), and are thought to activate mast cells and basophils. Thus, two distinct pathways may be contributing to the pathogenesis of this complex disease, although there are still many aspects of the pathologic mechanisms of CSU that remain unresolved.

Impact on HRQoL

CSU has a considerable impact on a patient's health-related quality of life (HRQoL), interfering with sleep, daily activities, social interactions, and school and work life.^{9, 11-17} Its impact on HRQoL was reportedly worse than, or similar to, that observed with other skin diseases, including psoriasis, acne, or atopic dermatitis.^{13, 14} One study showed that health status scores in patients with CSU were similar to those reported by patients with coronary artery disease, with patients feeling a similar lack of energy, social isolation, and emotional upset.¹⁵

CSU places considerable economic burden on patients, healthcare systems, and society.¹⁶⁻¹⁹ In particular, the ASSURE-CSU (ASSessment of the Economic and Humanistic Burden of Chronic Spontaneous/Idiopathic Urticaria patiEnts) study showed that there was considerable delay in the diagnosis and specialist referral of patients with CSU, with inadequate knowledge among medical staff in primary and secondary care about CSU, with poor compliance to guidelines and best practices.¹⁶ This resulted in incorrect treatment patterns and the associated high cost of unnecessary investigations and treatments.¹⁶ In addition, many patients sought alternative medical therapies, which were generally not covered by country health insurances. One in five CSU patients took time off work and one in four experienced reduced productivity at work. Similar work productivity impairments have been reported in other CSU studies.^{13, 17, 18}

Diagnosis

Acute urticaria does not usually require a diagnostic workup, as it is usually self-limiting and most commonly the result of a viral infection.

Guidelines strongly recommend that differential diagnoses be considered in all patients with signs or symptoms suggestive of chronic urticaria based on the guideline algorithm (Figure 2).²

There is a wide variety of underlying causes of urticaria that reflect regional differences, such as different diets or prevalence of different infections.⁵ Moreover, the presence of a positive test (for example to an allergen) does not indicate the cause of urticaria nor confirm the diagnosis. Therefore, careful questioning of, and listening to, the patient are vital when diagnosing urticaria.

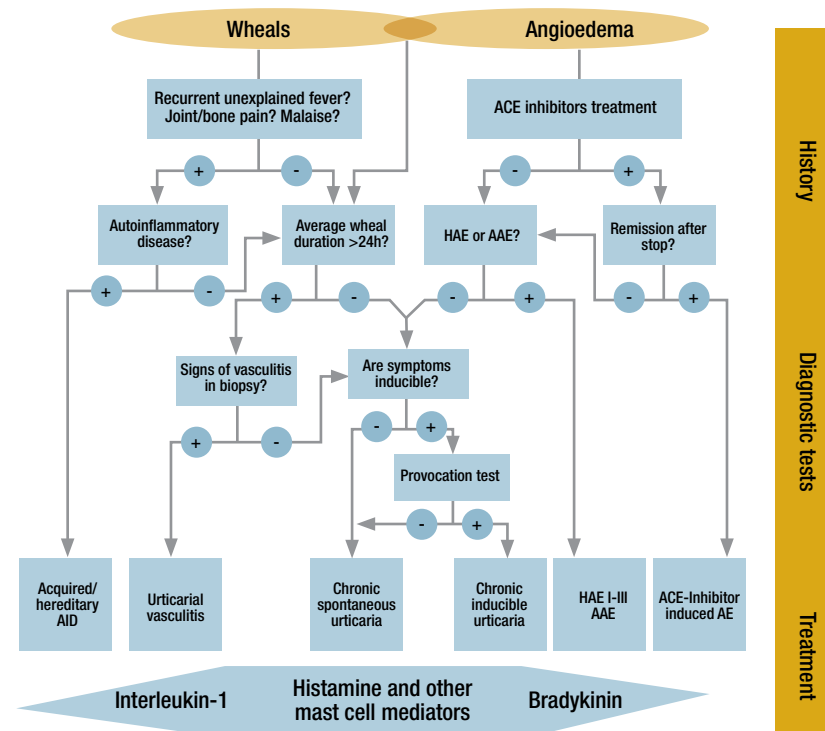


Figure 2. Diagnostic algorithm for patients presenting with wheals, angioedema, or both

AAE = Acquired angioedema due to C1-inhibitor deficiency; ACE-Inh = angiotensin converting enzyme inhibitor; AE = angioedema; AID = Auto-inflammatory disease; HAE = Hereditary angioedema; RAS = Renin angiotensin system. Source: Zuberbier T, et al. Allergy. 2018 ;73(7):1393-1414.

The update international guidelines recommend limited investigations in patients with suspected CSU.² Basic tests include full blood count and C-reactive protein. These tests are inexpensive and help exclude other differentials. Further diagnostic measures may be carried out based on the patient history and examination, especially in patients with long standing and/or uncontrolled disease, or if the patient is requesting the tests be conducted. Further tests that can be carried out include those for infectious diseases (e.g. *Helicobacter pylori*), and type 1 allergy (specific IgE, prick test), albeit a rare cause of CSU.

IgE-independent pseudoallergens including food additives, preservatives, dyes, vasoactive and aromatic compounds have been reported to induce and/or aggravate urticaria in CSU patients, but the reported rates of patients affected varies widely.²⁰ Moreover, no reliable laboratory or skin tests can currently identify those patients who may benefit from a pseudoallergen-free diet. There is a lack of supportive quality evidence and these diets remain controversial.

In chronic inducible urticaria, the mast cells have become susceptible to a specific physical stimulus. The guidelines recommend provocation testing to diagnose chronic inducible urticaria.² Provocation threshold measurements and the urticaria control test are recommended to measure disease activity and control, respectively.

Assessment of disease activity and impact

Patient-reported outcomes (PROs) are used to assess CSU activity and the effects of medications.^{1, 2} Variables such as the extent of rash, the severity of symptoms, and HRQoL are assessed.

The Urticaria Control Test (UCT) is being increasingly adopted as the tool of choice in assessing disease control (rather than disease activity). It is a simple 4-item, retrospective test which can be rapidly and easily completed in patients with chronic urticaria (both spontaneous or inducible).²¹

Urticaria Activity Score 7 (UAS7), a validated, simple, prospective scoring system, has been recommended for use in clinical trials and in clinical care.^{1, 2} The UAS7 is a measure of the extent and severity of urticaria, and it scores wheals and pruritus separately.²² Scores ranging from 0 to 3 are assigned for both wheals and pruritus each day for 7 days, giving a maximum score of 42 (Table 1). This tool can be used to determine response to treatment and it allows for efficiency in the clinic, maximising the information gathered during patient visits, and minimising the use of resources and time.⁴

Score	Wheals	Pruritus
0	None	None
1	Mild (<20 wheals/24 h)	Mild (present but not annoying or troublesome)
2	Moderate (20–50 wheals/24 h)	Moderate (troublesome but does not interfere with normal daily activity or sleep)
3	Intense (>50 wheals/24 h or large confluent areas of wheals)	Intense (severe pruritus, which is sufficiently troublesome to interfere with normal daily activity or sleep)

Sum of score: 0–6 for each day is summarised over one week (maximum 42)

HRQoL in patients with CSU is commonly assessed using the Dermatology Life Quality Index (DLQI), a quick widely used 10-question retrospective questionnaire.^{1, 23}



Management

Numerous guidelines are available to assist physicians in the treatment of patients with CSU,^{1-3, 5} including those by the Australasian Society of Clinical Immunology and Allergy (ASCIA),¹ and the recently published European Academy of Allergy and Clinical Immunology/Global Allergy and Asthma European Network/EDF, European Dermatology Forum/ WAO, World Allergy Organization (EAACI/GA2LEN/EDF/WAO) guidelines.² The goal of treatment is complete symptom control until the disease is in remission.²

Pharmaceutical interventions

Many of the symptoms of urticaria are mediated by the actions of histamine on H1-receptors. The H1-receptor is up-regulated by its own ligand (histamine).²⁴ To break this cycle, continuous treatment with H1-antihistamines is important in urticaria. Consequently, second generation H1-antihistamines are recommended as first-line treatment.² Second generation H1-antihistamines are recommended over older (first-generation) H1-antihistamines for a number of reasons. The first generation H1-antihistamines have sedative actions on the central nervous system (CNS) and may interact with alcohol and drugs affecting the CNS.²⁵ They can also interfere with rapid eye movement sleep and impact on learning and activities such as driving.²⁶ For patients with inadequate control using second generation H1-antihistamines, the dosage should be increased up to four-fold the standard dose, according to the revised international guidelines.²

For patients who are refractory to increased dosages of antihistamines, current evidence supports omalizumab (Xolair®), ciclosporin, and short courses of systemic corticosteroids.^{1, 2, 5} Clinical experience indicates that other agents (H2 receptor antagonists, leukotriene receptor antagonists, sulphones, immunosuppressives, and doxepin [a tricyclic antidepressant]) have been widely used in certain contexts;^{1, 2, 5} however, evidence from publications is lacking for these treatments.

The updated international guidelines recommend that omalizumab should be added to second generation H1-antihistamine treatment in patients refractory to increased doses of second generation H1-antihistamine therapy.² In the event of inadequate control with this combination, another agent such as ciclosporin is recommended in the recent international guidelines.² Ciclosporin has a moderate direct effect on mast cell mediator release and has demonstrated efficacy when combined with a second generation H1-antihistamine.² However, the recent international guidelines do not recommend this drug as standard treatment due to its association with a higher incidence of adverse effects.²

Caution should be exercised when treating children with chronic urticaria, and in pregnant and lactating women.² Drugs contraindicated in pregnancy should not be used.

COMMENT FROM EXPERT

There is currently insufficient evidence to make strong recommendations on which second-generation antihistamine to choose. Often this choice is driven by clinician preference or funding access. However, comparative studies suggest that not all of the second-generation antihistamines are equally effective with cetirizine and levocetirizine generally favoured at approved/standard doses.^{27, 28} In contrast, fexofenadine was most likely to have increased response rates when up-dosing.²⁹ When up-dosing, studies show that for the majority of antihistamines a four-fold increase is needed to achieve maximal effect. The exception is fexofenadine (either 120 mg or 180 mg doses) which only requires a two-fold increase.

It is generally accepted that using the same antihistamine at a higher dose is preferred and more likely to be effective compared with taking different antihistamines at the same time.²

Focus on omalizumab

In New Zealand, omalizumab is indicated for adults and adolescents (12 years of age and above) with CSU who remain symptomatic despite H1-antihistamine treatment.³⁰

Dosage and administration

The recommended dose of omalizumab is 300 mg by subcutaneous injection every four weeks.³⁰ Some patients may achieve control of their symptoms with a dose of 150 mg every four weeks. Prescribers are advised to periodically reassess the dose and need for continued therapy.

Omalizumab should be used as add-on therapy to H1-antihistamine treatment.³⁰

While the recommended initial dose of omalizumab is 300 mg once every 4 weeks, data from real-world studies indicated that the dose of omalizumab can be back-titrated to the lowest dose necessary to effectively control symptoms.³¹

Omalizumab is funded by PHARMAC **Figure 3** if the patient is 12 years or older; and symptomatic with either: a UAS7 of ≥ 20 ; and a DLQI of ≥ 10 ; or an UCT of ≤ 8 ; AND if any of the following apply:³²

- The patient has been taking high-dose antihistamines (e.g. four times standard dose) and ciclosporin (>3 mg/kg per day) for at least 6 weeks;
- The patient has been taking high-dose antihistamines (e.g. four times standard dose) and at least 3 courses of systemic corticosteroids (>20 mg prednisone per day for at least 5 days) in the previous 6 months; or
- The patient has developed significant adverse effects whilst on corticosteroids or ciclosporin.

In New Zealand, application for funding for omalizumab can only be made by a clinical immunologist or dermatologist.

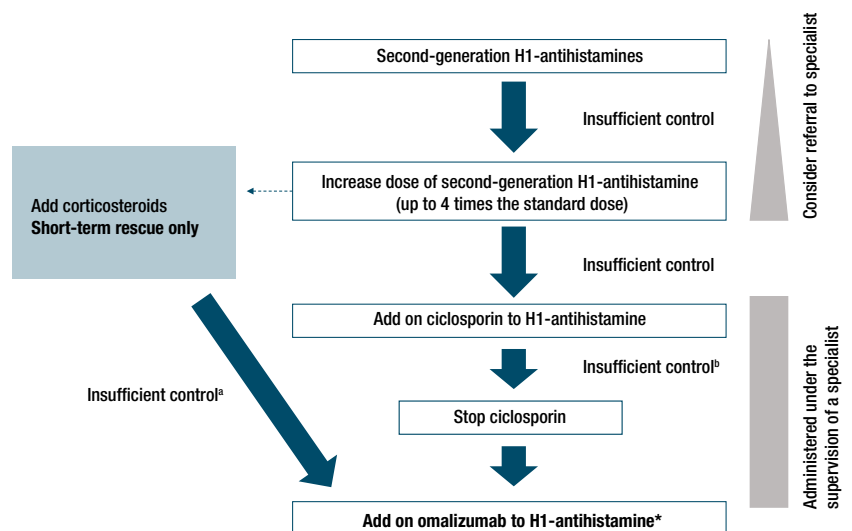


Figure 3. Treatment algorithm for use of omalizumab in chronic spontaneous urticaria based on PHARMAC funding

*Add on to antihistamines: In patients patient ≥ 12 years with a UAS7 ≥ 20 ; and a DLQI ≥ 10 ; or an UCT of ≤ 8 .

^aThe patient has been taking high-dose antihistamines (e.g. four times standard dose) and at least 3 courses of systemic corticosteroids (>20 mg prednisone per day for at least 5 days) in the previous 6 months; OR the patient has developed significant adverse effects whilst on ciclosporin.

^bThe patient has been taking high-dose antihistamines (e.g. four times standard dose) and ciclosporin (>3 mg/kg per day) for at least 6 weeks; OR the patient had developed significant adverse effects whilst on corticosteroids or ciclosporin.

COMMENT FROM EXPERT

It is suggested that the most effective dosing regimen of ciclosporin in CSU is 3 mg/kg/day (given as two doses) for 6 weeks, followed by 3 weeks at 2 mg/kg/day, then 3 weeks at 1 mg/kg/day before discontinuing.³³ Ideal body weight rather than actual body weight should be used to calculate the required dose. Approximately 70% of patients treated with low-dose ciclosporin will have full remission or significant improvement. This should, therefore, be considered for use in treating CSU and best practice prescribing guidelines followed. In particular, patient blood pressure and renal function should be carefully monitored.

Adverse effects, are for the most part, dose dependent and related to duration of therapy. By using recommended monitoring protocols, the chance of ciclosporin-related side effects can be significantly decreased.³⁴



Mechanism of action

Omalizumab, a recombinant humanized monoclonal antibody, lowers free IgE levels in the blood and subsequently in the skin.³⁵ This is thought to lead to down-regulation of surface high-affinity receptors, thereby decreasing downstream signalling, and resulting in suppressed cell activation and inflammatory responses (Figure 4).^{35,36}

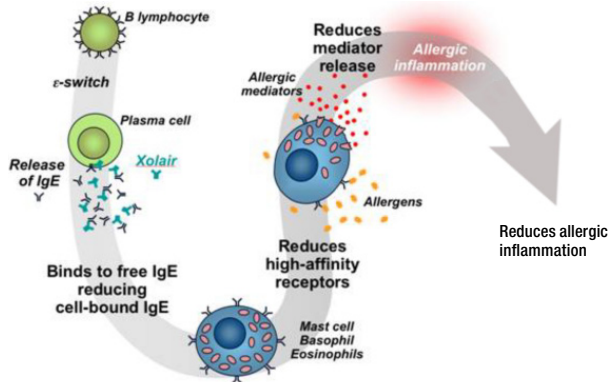


Figure 4. Mechanism of action of omalizumab

Efficacy of omalizumab in clinical studies

Several case studies and small trials provided the initial evidence for the efficacy of omalizumab in CSU who remained symptomatic despite treatment with H1-antihistamines.³⁷⁻⁴¹ Subsequently, three randomised, placebo-controlled phase 3 studies established its efficacy and safety in this indication.⁴²⁻⁴⁴ In these phase 3 clinical trials, omalizumab significantly reduced symptoms in patients with CSU refractory to H1-antihistamines.⁴²⁻⁴⁴

Omalizumab 150 mg and 300 mg, compared with placebo, once every four weeks:

- Significantly reduced the mean weekly itch severity score (Figure 5);
- Significantly reduced UAS7 (Figure 6);
- Improved measures of HRQoL.

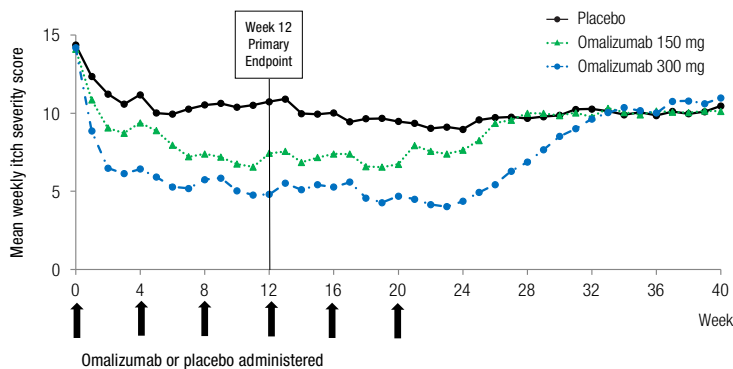


Figure 5. Mean itch severity score (ISS) score over time in a placebo-controlled phase 3 study^{30,42} [adapted from the omalizumab prescribing information]

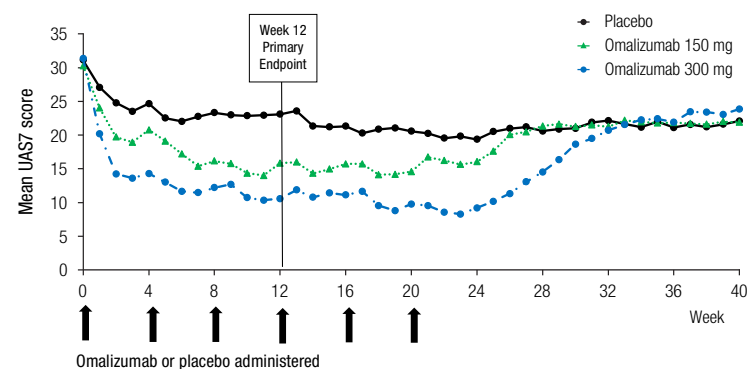


Figure 6. Mean UAS7 score over time in a placebo-controlled phase 3 study^{30,42} [adapted from the omalizumab prescribing information]

A meta-analysis of seven randomised trials (1312 patients) in patients with CSU not responsive to standard doses of H1-antihistamines demonstrated that omalizumab significantly reduced the weekly itch severity score and wheal severity scores compared with placebo.⁴⁵ The most effective dose was 300 mg every four weeks, at which 36% of patients had a complete response (i.e. a post-treatment UAS7 score of 0). Rates of patients with adverse events were similar with omalizumab or placebo.

Similarly, a systematic review of 84 publications of real-world observational studies supported the effectiveness of omalizumab in daily clinical practice.³¹

Safety of omalizumab in clinical studies

No new safety concerns occurred in the phase 3 trials,⁴²⁻⁴⁴ with the tolerability profile of omalizumab being similar to that observed during the use of omalizumab in patients with allergic asthma.^{46,47}

Upper respiratory tract infection, headache, arthralgia, and injection site reactions occurred more frequently with omalizumab than placebo.⁴²⁻⁴⁴

In premarketing clinical trials in asthma patients, anaphylaxis was attributed to omalizumab administration in 3 of 3507 (0.1%) patients in this asthma cohort.³⁰ Anaphylaxis occurred after the first dose of omalizumab in two patients and after the fourth dose in the other patient. After omalizumab administration, the time to the onset of anaphylaxis was 90 minutes in two patients and 2 hours in the other patient. However, it is important to note, that no episodes of anaphylaxis were recorded in CSU trials.

According to post-marketing spontaneous reports, the frequency of anaphylaxis attributed to omalizumab was estimated to be at least 0.2% of patients based on an estimated exposure of about 57,300 patients from June 2003 through December 2006.³⁰ Anaphylaxis has occurred after the first dose of omalizumab, as well as more than one year after initiation of the regularly scheduled treatment.

Consequently, the recommendation is that omalizumab should only be administered in a healthcare setting by healthcare providers prepared to manage anaphylaxis.³⁰ Patients should be closely observed for an appropriate period of time after administration of omalizumab, taking into account the time to onset of anaphylaxis (see above). Patients should be made aware of the signs and symptoms of anaphylaxis, and be instructed to seek immediate medical care should they occur.

There were no anti-omalizumab antibodies detected at week 40 in a phase 3 trial.^{38,44}

COMMENT FROM EXPERT

Information on the use of omalizumab in urticaria can help frame patients' treatment expectations regarding this medication. Omalizumab is shown to be effective in CSU, and for the majority of patients, the treatment effect is fast. In clinical practice, up to a third of patients responded within the first day, with the majority noticing improvements within the first 8 days.⁴⁸

Real-world experience regarding the safety of omalizumab in CSU is reassuring, and fortunately, adverse reactions are rare. Omalizumab should be administered by a suitably qualified clinician. Best practice involves observation of the patient for any adverse reaction for 2 hours after the first three omalizumab injections, and for 30 minutes thereafter, in an area under direct staff observation by a suitably qualified clinician.⁴⁹

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Long-term management of CSU

Evidence exists for the safety and efficacy of omalizumab in the long-term treatment of CSU in patients that still need the drug after several years, with evidence that retreatment is effective and could be done if symptoms return.⁵⁰⁻⁵³

The phase 3b OPTIMA study^{51, 52} investigated the best way to manage the treatment dosage, the withdrawal of treatment, and retreatment of this disease over the long term. In this study, 314 patients with symptoms of CSU, despite taking H1-antihistamines, were randomised to 24 weeks of omalizumab 150 mg or 300 mg. After 24 weeks, 65% of patients with omalizumab 300 mg/month were well controlled (UAS7 ≤6) compared to 15% treated with omalizumab 150 mg/month. Between 8 and 24 weeks of treatment, 79% of patients initiated on omalizumab 150 mg were not well controlled (UAS7 >6) and had their dose increased to 300 mg. After three additional doses of omalizumab 300 mg, 45% of these patients achieved symptom control, indicating that up-dosing is effective for many patients initiated on a lower dose. Data from the OPTIMA trial also indicate that treatment can be stopped and then reinitiated with responses re-occurring.^{51, 52}

In the phase 4 XTEND-CIU study,⁵³ continued omalizumab treatment beyond 24 weeks was beneficial to 134 patients with CIU/CSU by preventing return of symptoms and also by achieving sustained control through 48 weeks of treatment. The percentage of patients experiencing clinical worsening during the 12 weeks after withdrawing treatment was identical in patients treated for 24 weeks or 48 weeks before omalizumab withdrawal.

A study that used pooled data from the phase 3 studies found that high baseline UAS7 and a slow decrease of symptoms when first treated was associated with a higher probability of rapid symptom return when omalizumab was withdrawn.⁵⁴

Real-life studies

Real-life studies involving CSU patients treated with omalizumab support the outcomes from the phase 3/4 clinical trials.^{31, 55-63} A real-world study that investigated omalizumab use in the United States in a large cohort of patients with chronic urticaria (n = 1546) found that the majority of the patients (84.5%) were initiated on omalizumab 300 mg; 90% maintained the initial omalizumab dose, 7.5% had a dose increase, and 4.6% had a dose decrease.⁶¹ The mean omalizumab treatment duration was 9.1 months. The proportion of the patients continuously treated with omalizumab for 6, 9, and 12 months was 67.3, 54.8, and 47.4%, respectively. Of the patients who discontinued omalizumab for ≥3 months (39.8%), 21% restarted the treatment after a mean 4.4 months. The use of other CSU-related medications decreased after omalizumab initiation, with the most prominent decrease being in the use of oral corticosteroids.⁶¹ This steroid-sparing effect has also been noted in other real-life studies.⁶³

A systematic review of 84 real-world studies indicated that most patients were initiated at a dose of 300 mg (62.7% of patients), while 34.5% were initiated at the 150 mg

dose.³¹ Data from 26 studies indicated that the optimal or end dose of omalizumab was 150 mg every 4 weeks in 35.8% of patients, and 300 mg every four weeks in 30.1% of patients; while the remaining patients were titrated to another dose/frequency.

Late responders and “resistant” patients

Some patients take longer to respond to omalizumab; statistically these patients tend to have more severe disease. A recent expert consensus has provided a definition of “complete”, “partial” and “non-response” to omalizumab.⁶⁴ According to this definition, a UAS7 or UCT is required for defining response; a UAS7 ≤6 and/or UCT ≥12 is considered a response. In patients where there is no response during the first 1-3 months, physicians should consider reassessing the original CSU diagnosis.⁶⁴ In patients showing partial response at 12 weeks, treatment with omalizumab should be continued in order to maximize the possibility of achieving symptom control. If patients have a UAS7 >6 and/or UCT <12, then continued treatment is advised, dependent on physician judgement and patient expectations. Treatment should continue for up to 6 months before a patient is considered a non-responder.⁶⁴

PHARMAC indicates that treatment should be stopped after four doses if there is an inadequate response (defined as less than 50% reduction in baseline UAS7 and DLQI score, or an increase in UCT score of less than 4 from baseline).³²

Administration of prefilled syringes

Omalizumab is available as a pre-filled syringe (Figure 7).³⁰

The syringe sealed in its outer box should be stored at between 2°C and 8°C in the refrigerator. Prior to being used, the syringe should be taken out of the refrigerator and allowed to reach room temperature (about 20 minutes).

Omalizumab can be injected subcutaneously in either the upper outer thigh or the upper outer arm.

Full details of how to administer omalizumab are given in the prescribing information.³⁰ Administration of omalizumab should be by a healthcare provider only.

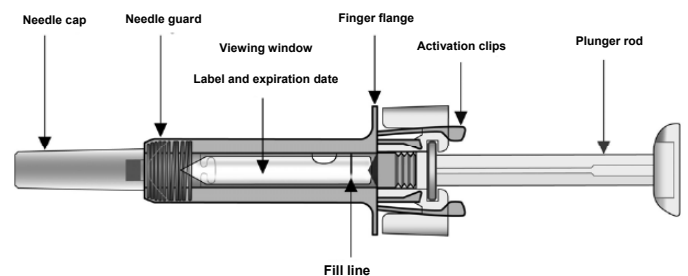


Figure 7. Parts of the pre-filled syringe of omalizumab³⁰

CONCLUDING REMARKS OF EXPERT

CSU is a chronic disease that impacts patients' lives beyond its immediate effects on skin. This review of urticaria, therefore, would not be complete without advocating a whole person approach. It is important to go beyond the symptom control provided by the pharmacological agents presented here. Whether emotional stress is the cause or consequence, a simple acknowledgement of the role it plays in CSU can make a difference to the patient's experience of the disease and the overall effect of the clinician's treatment. Motivated patients will find the New Zealand Mindbody network resources can help them explore their illness (URL: <https://wholeperson.healthcare>).

Research in recent years into the pathogenesis of urticaria has started to uncover some of the mysteries of this complex disease. This will undoubtedly provide further treatment breakthroughs, much like omalizumab has dramatically improved the control of this disease in the most severe sufferers. Compared with just 5 years ago, this is an exciting time for the patient-centred clinician to care for patients with CSU. Who knows what the next 5 years could reveal? Perhaps we may be better able to solve the problems currently associated with the management of patients with this puzzling condition?

TAKE HOME MESSAGES

- CSU is a common, mast cell-driven disease, presenting with wheals, angioedema, or both
- CSU impairs HRQoL and may affect performance at work or school
- Recommended first-line treatment for CSU is with second generation H1-antihistamines
- Omalizumab is an effective and well-tolerated add-on therapy for patients who are unresponsive to H1-antihistamines
- When omalizumab is re-instituted for a relapse of CSU, it remains effective
- The recommended omalizumab dose is 300 mg by subcutaneous injection every four weeks



RESOURCES

Funding application:

Special authority for omalizumab is available at: <https://www.pharmac.govt.nz/latest/SA1744.pdf>

Information about CSU and its management are available online at:

- The Australasian College of Dermatologists website: <https://www.dermcoll.edu.au/atoz/urticaria/>
- The ASCIA website: <https://www.allergy.org.au/>
- World Allergy Organization website: <http://www.worldallergy.org>
- CSU Knowledge website: <https://www.epgonline.org/csu/en/>
- DermNet NZ website: <https://www.dermnetnz.org>
- New Zealand Mindbody network website: <https://wholeperson.healthcare>

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