

25.92 ± 8.46 years. There were no beekeepers in our study group. The number of people reported at least one insect sting for all their lives was 606 (85.5%). The rate of people who had a bee sting during last year was 22.6%. The geometric mean of sting exposure was 3.92 ± 4.59. A wasp was recognized by 53.1% of subjects as their last stinging insect, honey bee in 38.8% and 8.1% were not able to identify the insect. The prevalence of severe systemic sting reactions was 1.2%, whereas the prevalence of mild systemic reaction was 5.4%. Large local reactions were reported in 11.5%, and 81.42% had normal or mild local reaction. Emergency room visits were reported in 5% of all cases. Family history for bee/wasp allergy was 11.7%. The cases had taken place commonly in August (18.3%); and in July (15.7%). None of the people who had systemic reactions had knowledge about adrenaline auto-injector and none of them was receiving immunotherapy for bee/wasp allergy.

The question 'What did you do after the sting?' was answered as follows: Only nine people (1.5%) had the knowledge that they had to remove the stinger, and five people (0.8%) had the knowledge to use antihistamines. Application rate for medical care was 1.8%. Cold compress application was used in 102 cases (16.8%). One case reported analgesic usage. Six people could not remember what they had done after the sting. Among all cases, 331 people (54.6%) reported that they had done nothing after the sting. Distributions of the alternative therapy methods used for bee or wasp stings are shown in Table 1.

To our knowledge this is the first study on alternative therapy methods for bee/wasp allergy in eastern part of Turkey. Our study revealed that the public awareness for venom allergy is not enough. People did not know that there is a therapy method 'venom immunotherapy' and an 'adrenaline auto-injector' for emergency treatment in patients who had experienced severe systemic reactions. Many different traditional alternative methods are widely being used as the first choice of treatment among people although no scientific study has been performed to understand their effective-

Table 1. Alternative therapy methods for bee/wasp allergy

Alternative therapy methods	n
Applying clay to the stinger site	34
Applying tomato/tomato paste	24
Applying yoghurt	20
Applying hot stones	16
Squeezing/suctioning the stinger site	9
Washing with tap water	8
Applying garlic	4
Applying metal things	3
Let the stinger site to bleed	2
Applying alcohol	2
Applying salt	2
Applying onions	2
Applying warm compress	1
Applying honey	1
Applying stone	1
Applying sour fruit	1
Applying pressure with spoon	1
Applying pressure with hands	1
Smearing ointment	1
Applying sugar	1
Applying fig	1
Applying iron water	1
Applying ashes	1
Applying hot iron	1
Applying golden jewellery	1

ness and there is no proof of their efficacy.

In conclusion; public knowledge about bee/wasp allergy, and behaviour for searching medical care, even among patients who had overcome life-threatening events, is not sufficient in eastern Turkey. Traditional alternative treatment usage is very common, which is not yet proven to be effective.

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Successful treatment of cholinergic urticaria with anti-immunoglobulin E therapy

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Key words: anti-immunoglobulin E; cholinergic urticaria; mast cells; omalizumab; urticaria.

Cholinergic urticaria is typically characterized by intense pruritus and pin-sized wheals surrounded by erythema. Symptoms are provoked by an increase in body core temperature induced by passive warming (e.g. hot bath), physical exercise and/or emotional stress. Although most patients with cholinergic urticaria present only mild to moderate reactions, the symptoms can be severe with massive pruritus and wheal and flare reactions covering the whole body, sometimes with concomitant systemic reactions (1). An additional problem in these severe cases

A possible new treatment alternative and new insight into the pathogenesis of cholinergic urticaria.

of cholinergic urticaria is that conventional antihistamine treatment is often unsuccessful.

We present the case of a 25-year-old caucasian male with severe cholinergic urticaria who experienced unbearable pruritus and wheals, occasionally associated with dizziness and cardiac palpitations, induced by even mildly elevated outside temperatures, hot beverages, minimal physical exercise (e.g. by carrying grocery bags or walking stairs), and by emotional stress such as driving a car in heavy traffic or giving presentations in front of an audience. The patient was diagnosed with cholinergic urticaria 5 years ago and had been treated since then with various sedating and nonsedating antihistamines, disodium cromoglycate, ketotifen, leukotriene receptor antagonist, corticosteroids (up to 60 mg/day), dapsone, danazol, doxepin, beta-blocker, photochemotherapy (PUVA) as well as various diets, none of which resulted in a significant reduction in symptoms.

At the time the patient presented himself in our department, his medication consisted of a combination of desloratadine (3 × 5 mg), levocetirizine (2 × 5 mg), hydroxyzine (1 × 25 mg), montelukast (1 × 10 mg), ketotifen (2 × 1 mg), and propranolol (2 × 40 mg). Even under this medication, the patient was severely impaired in his every day life and we were able to provoke cholinergic urticaria symptoms (pruritus, wheal, and flare) in the patient by moderate physical exercise at room temperature. The patient also suffers from seasonal allergic rhinoconjunctivitis but is otherwise healthy.

The pathogenesis of cholinergic urticaria is still poorly understood. It is generally assumed that an increase in body temperature in cholinergic urticaria patients results in the upregulation of one or more mast cell secretagogues and thereby mast cell degranulation in the skin, which subsequently induces vasodilation, extravasation, and erythema (2). Passive transfer experiments from human to monkey indicate that a serum factor may exist in some patients with cholinergic urticaria (3). Thus, as of yet, the mast cell activating mechanisms and signals remain largely unclear.

Omalizumab is a recombinant humanized monoclonal antibody against

immunoglobulin E (IgE). It acts by binding free IgE at the same site that IgE would bind to its high-affinity receptor (FcεRI) on mast cells, thereby reducing free IgE in the serum (4). Moreover, as a result of depleting free IgE, omalizumab strongly downregulates the expression of FcεRI on mast cells (5). Recently, successful treatment of a patient with cold urticaria (6) and three patients with chronic urticaria (7) with omalizumab has been reported. Because of these positive reports, and because none of the previous treatment strategies had resulted in an improvement of cholinergic urticaria in our patient, we began to treat our patient with omalizumab (with 300 mg every 2 weeks). To our surprise, our patient reported back to us after the second injection (i.e., in week 3 after start of treatment), with a significant improvement of his symptoms (Fig. 1). Also, he had reduced his concomitant medication to desloratadine 3 × daily and propranolol once daily. His condition continued to improve and in week 5 after the start of omalizumab our patient reported to not have experienced any

symptoms for an entire week [(his) best week during the past 5 years]. We performed physical exercise provocation tests in weeks 10 and 20 of treatment with omalizumab, which were completely negative, even under maximal physical strain. In week 11, the patient stopped all concomitant medication. Today, the patient has been free of any symptoms for 22 weeks and he is able to resume all activities, including hot baths and extensive workouts.

This is, to our knowledge, the first report of a successful treatment of cholinergic urticaria with omalizumab. The observed rapid improvement in the symptoms during anti-IgE therapy supports the hypothesis that cholinergic urticaria might be mediated by IgE and gives rise to the speculation that IgE might constitute the serum factor found by serum transfer studies in some patients with cholinergic urticaria (3). Further clinical trials should investigate whether anti-IgE treatment is in general beneficial for patients with cholinergic urticaria; these future investigations might also help to understand the

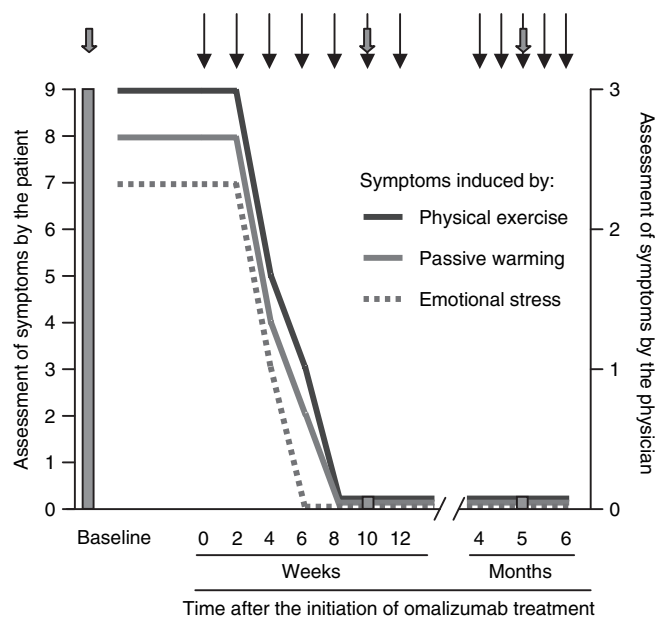


Figure 1. Omalizumab treatment results in the rapid and marked reduction in symptoms of cholinergic urticaria. Black arrows indicate the time points of omalizumab shots. Blue arrows indicate physical provocation tests assessed by the physician, bars represent the clinician's scoring of the severity of symptoms in the provocation test on a four-point quantitative scale (0–3+). Lines indicate the patient's retrospective scoring of symptoms on a nine-point scale derived from adding individual scores for itch, wheals, and reddening (0, none; 1, mild; 2, moderate; and 3, severe).

pathogenetic mechanism of the disease. This case shows that cholinergic urticaria can be rapidly and successfully treated with omalizumab at the recommended dosage without side-effects.

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