
Correspondence

AUTOIMMUNE URTICARIA RESPONSE TO HIGH-DOSE INTRAVENOUS IMMUNOGLOBULIN

To the Editor:

A previous study¹ reported the use of intravenous immunoglobulin (IVIG) to treat patients with chronic idiopathic urticaria. The patients in this study were selected based on a positive autologous serum skin test (ASST) result.²

We report a case of a 56-year-old white man with polyglandular autoimmune disease (Hashimoto thyroiditis, vitiligo, pernicious anemia, and type 1 diabetes mellitus) with a 2-year history of unremitting urticaria and angioedema. His angioedema was responsive to antihistamine therapy combined with leukotriene antagonist therapy; however, his urticaria was unresponsive to medications. The urticaria began after his Humulin insulin (Eli Lilly and Company, Indianapolis, IN) was changed to Novolin insulin (Novo Nordisk Inc, Princeton, NJ) for his brittle type 1 diabetes mellitus. Humulin insulin is synthesized from genetically altered *Escherichia coli*, whereas Novolin is produced using recombinant DNA technology that involves *Saccharomyces cerevisiae* (baker's yeast). At the onset of his urticaria, the patient had an overgrowth of *S cerevisiae* in his stool sample. This overgrowth was not treated. The patient's insulin formulation was changed back to Humulin, and he had complete remission of his urticaria for 2 weeks. Subsequent stool analysis found no overgrowth of *S cerevisiae*.

During the next 4 months, the urticaria and angioedema symptoms worsened despite maximal doses of H₁- and H₂-antagonists coupled with leukotriene antagonists. Oral steroids were not used in this patient because of his brittle diabetes. Although he had no renal disease, cyclosporine³ was also not attempted for his therapy. He found the sedative effects of doxepin unacceptable. An ASST result was found to be positive by the criteria outlined by Sabroe et al.² High-dose (2-g/kg) IVIG (6% concentration) was administered during a 24-hour period.

After this infusion of IVIG, the patient noted improvement in his baseline urticaria, and within 48 hours he was symptom free. During the next 6 weeks, he was weaned off his daily regimen of fexofenadine, montelukast, ranitidine, and cetirizine. He had no recurrence of his hives for 6 months. Based on the predictive value of a subsequent ASST as described in the article by Sabroe et al, the patient agreed to additional testing.

The ASST was performed with autologous serum that had been frozen (−70°C) before IVIG therapy and his serum from the morning of his subsequent ASST (Fig 1). By the criteria of Sabroe et al, the result of the skin test to serum from before the IVIG was positive and to serum from the morning of the test 6 months later was negative.

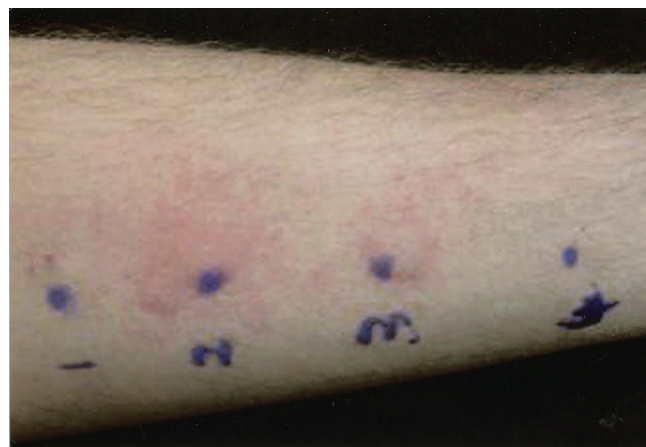


Figure 1. Results of autologous serum skin testing at 24 weeks after intravenous immunoglobulin therapy: saline control (1), histamine (2), serum from October 2003 (3), and serum from April 2004 (4).

One month after his subsequent ASST, the patient's urticaria returned and was poorly controlled despite medications. At this time, he also had poor control of his hypothyroidism and increased life stress. The ASST was performed again and the result was positive. Despite reassurance and control of his hypothyroidism, the patient's urticaria continued to flare, and he was given an additional dose of IVIG during a 24-hour period. The patient had moderate improvement but not remission after this therapy. The patient continues antihistamine therapy with adequate control. He refused any further ASSTs and IVIG.

In patients with chronic idiopathic urticaria an autoimmune process is thought to be responsible for 30% to 50% of cases.⁴ Functional IgG autoantibodies with specificity for the α portion of the Fc ϵ R1 receptor or to IgE have been found to be responsible for histamine release from dermal mast cells and basophils.⁵ Support for this theory of pathogenic autoantibodies is that plasmapheresis has cleared antibodies with successful temporary remission of the urticaria.⁶

The autologous serum skin test with a sensitivity of 65% to 81% and a specificity of 71% to 78%² is the only clinical test that can be performed to detect these autoantibodies. The basophil release assay, to which the ASST is compared, is the gold standard but is only performed in research laboratories at this time.

In the report by O'Donnell et al,¹ the 5-day 0.4-g/kg dose of IVIG produced remission in 9 of 10 patients, with 2 experiencing long-term remission (>3 years) with the initial dose. That study also found that patients who converted to a negative ASST result 6 months after IVIG therapy enjoyed complete permanent remission.

The mechanism of effect of the IVIG is not proven for its role in autoimmune urticaria; however, IVIG may contain anti-idiotypic antibodies for the receptors, may serve to compete with the receptors and block the histamine release, or may enhance the clearance of endogenous IgG. Why the effect is sustained after the initial therapy is cleared from the body is not known.

In this case, a one-time dose of IVIG proved effective in effecting complete remission of this patient's autoimmune urticaria for a period of 7 months. Contrary to the findings of the series of O'Donnell et al, his urticaria returned despite a negative ASST result at 6 months.

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EVALUATION OF GROUP 1 MITE ALLERGEN LEVELS IN SYNTHETIC AND FEATHER PILLOWS: ABSENCE OF DIFFERENCE

To the Editor:

Synthetic pillows have been found to contain and accumulate mite allergens more rapidly than feather pillows¹⁻³ and to be a risk factor for severe asthma.⁴ In these previous studies, the dust samples were obtained by vacuuming the pillow surfaces. We compared the contents of group 1 (Der p 1 and Der f 1) mite allergens in feather and synthetic foam pillow fillings.

Thirty feather and 30 synthetic foam-filled pillows from different homes of house dust mite allergic patients, known to our clinic, in or around the Strasbourg area were randomly selected if their corresponding mattresses were known to contain 2 µg/g or more of mite allergens in the mattress dust

as evaluated by the Acarex test. All selected patients' homes had a stable mean indoor temperature of 18° C (range, 16° C-20° C), and all participants gave their consent. Two samples of pillow fillings, each of 5 cm², from 2 diagonally opposite sites were taken. A medical indoor environment counselor collected mattress dust as described.⁵ Allergen measurements in dust and pillow samples were performed by using a 2-sided monoclonal enzyme-linked immunosorbent assay (Indoor Biotechnologies, Cardiff, Wales). To test the reproducibility of the method, 6 synthetic and 6 feather pillows were selected at random, and each pillow was sampled at 10 different sites. The means of the allergen contents in 2 groups of pillows and in their corresponding mattresses were compared using the *t* test. Statistical significance was set at .05.

Synthetic and feather pillows had on an average 500 and 1,000 g of filling, respectively. There was no significant difference in mean allergen contents between the 2 pillow groups (15.38 ng/g [range, 1.90-137.26 ng/g] in synthetic vs 20.26 ng/g [range, 1.90-440.05 ng/g] in feather pillows; *P* = .72). There was also no difference between mean allergen contents in mattress dust (24.07 µg/g [range, 2.02-73.92 µg/g] in synthetic vs 18.66 µg/g [range, 1.08-79.04 µg/g] in feather pillow groups; *P* = .33). Coefficient of variation of mite allergens in 10 samples for 1 pillow varied from 0 (all samples immeasurable) to 9.8% for synthetic and feather pillows. No difference was seen in the time the pillow spent on the mattress (mean, 5 years for synthetic and 9 years for feather pillows; *P* = .08).

Earlier studies showed 5- to 8-fold greater allergen content in synthetic pillows.^{1,4} In these studies, the dust samples were obtained by vacuuming pillow surfaces. A more open weave of the encasement of synthetic pillows⁴ could have been responsible for the observed phenomenon. We measured allergen content in synthetic and feather pillow fillings and found no difference.

It is known that vacuuming a pillow surface is difficult and the amount of dust obtained is often low. Consequently, vacuuming only is not enough to evaluate real mite allergen content in pillows, and conclusions about the potential role of synthetic pillow in asthma severity have to be carefully made.

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