

LETTERS TO THE EDITOR

Diagnostic value of autologous serum skin test in autoimmune urticaria

Editor

Autoimmune urticaria was earlier separated from the group of chronic idiopathic urticaria (CIU). It is now established that circulating autoantibodies against the high-affinity immunoglobulin E (IgE) receptor or against IgE are detected in patients with CIU. The autologous serum skin test (ASST) has been suggested for the diagnosis, together with the characteristic clinical symptoms.

We have read with great interest the recent publication by Guttman-Yassky *et al.* about ASST. The authors were using undiluted serum in a cohort of CIU patients compared with respiratory allergy patients and healthy individuals. In their article, they found relatively low specificity and sensitivity of the ASST in the CIU patients compared with the healthy individuals. Authors suggest a more critical interpretation of the ASST in CIU.¹

We investigated the specificity of this test using diluted serum in patients with CIU compared with healthy persons and with subjects of other dermatological diseases. ASSTs were performed on 35 patients with CIU (urticaria with physical causes, urticarial vasculitis, food-induced urticaria and also medications, agents causing contact urticaria, food dyes, aspartame and other food additives as causes of CIU were excluded). Twenty healthy persons and 60 patients with different dermatological diseases [20 leg ulcers, 15 psoriasis, 10 autoimmune polysystemic diseases (6 patients with SLE, 2 patients with dermatomyositis, 2 patients with scleroderma), 5 dermatitis, 5 erysipelas and 5 malignant skin tumours] were involved (Table 1).

From proximal to distal, 0.1 mL samples of undiluted autologous serum, 1 : 10 and 1 : 100 diluted (with 0.9% sterile saline) autologous serum, histamine (10 µg/mL) and 0.9% sterile saline were separately injected into the volar aspect of the forearm, with at least 3 cm between injection sites. Wheal responses were measured at 30 min. The test was positive if the diameter of the wheals at the site of the undiluted and 1 : 10 diluted sera injection were 2 mm larger than it was at the site of sterile saline injection.

The test with undiluted serum was positive in many cases (43 subjects, 37%), in urticaria patients (14 patients,

Table 1 Results of the autologous serum skin testing with undiluted and diluted serum

Examined persons	<i>n</i>	Undil. serum	1:10 dil. serum	1:100 dil. serum
Healthy persons	20	6	0	0
Patients with urticaria	35	14	12	2
Patients with diff. dermatological diseases	60	23	4	0
Autoimmune diseases	10	4	3	0
Psoriasis	15	5	1	0
Leg ulcer	20	7	0	0
Dermatitis	5	3	0	0
Erysipelas	5	2	0	0
Malignant skin tumors	5	2	0	0

40%), healthy persons (6 subjects, 30%) and also in patients with other dermatological diseases (23 patients, 38.3%; Table 1). A 10-fold dilution of sera differentiates the patients with unexplained CIU from other dermatologic patients and controls better than undiluted sera. No positive reactions were observed among the healthy subjects, or among the patients with dermatological diseases except for three patients with autoimmune disease (1 patient with scleroderma, 2 patients with lupus erythematosus) and one patient with psoriasis. In the patients with CIU, the test was positive in 12 cases with 1 : 10 diluted serum and in 2 cases with 1 : 100 diluted serum. These results are comparable with the clinical symptoms of the patients (Table 1).

Our results show that the ASST with undiluted serum gives non-specific positive reactions, which can be caused by aggregated Ig, immune complexes, other autoantibodies, etc.²⁻⁴ The relatively high concentrations of these materials may induce a non-specific histamine release of basophils or mast cells.

The basophil histamine release assay, Western blotting and other non-functional assays and flow cytometry using chimeric cell lines expressing the human FcεRIα may be useful for screening the sera, but in the everyday clinical practice, these are quite difficult to accomplish.⁵⁻⁷

Accordingly, we suggest the use of 1 : 10 and 1 : 100 dilutions for the test, in order to avoid non-specific reactions, and also to establish a better diagnostic opportunity for patients with autoimmune urticaria.

We are working on another dilution set (1 : 10, 1 : 20, 1 : 40, 1 : 80) recently, which will help us to screen patients with CIU more precisely.

S Husz, L Mihalyi,* L Kemeny

Department of Dermatology and Allergology, University of Szeged, Szeged, Hungary, *Corresponding author, University of Szeged, Department of Dermatology and Allergology, Koranyi fasor 6., H-6701, PO Box 427, Szeged, Hungary, tel. +366 2545 277; fax +366 2545 954; E-mail: mihalyililla@hotmail.com

References

- 1 Guttman-Yassky E, Bergman R, Maor C, Mamorsky M, Pollack S, Shahar E. The autologous serum skin test in a cohort of chronic idiopathic urticaria patients compared to respiratory allergy patients and healthy individuals. *J Am Acad Dermatol* 2007; **21**: 35–39.
- 2 Fiebeger E, Hammerschmid F, Stingl G, Mauer D. Anti-FcεRIα autoantibodies in autoimmune disorders. Identification of a structure-function relationship. *J Clin Invest* 1998; **101**: 243–251.
- 3 Hunziker T. Circulating immun complexes in patients with psoriasis: do they exist? *Exp Dermatol* 1992; **1**: 149–151.
- 4 Reeves W. Autoimmune mechanisms in psoriasis. *Semin Dermatol* 1991; **10**: 217–224.
- 5 Grattan CEH, Sabroe RA, Greaves M. Chronic urticaria. *J Am Acad Dermatol* 2002; **46**: 645–657.
- 6 Hide M, Francis DM, Grattan CE, Hakimi J, Kochan JP, Greaves MW. Autoantibodies against the high-affinity IgE receptor as a cause of histamine release in chronic urticaria. *New Engl J Med* 1992; **328**: 1599–1604.
- 7 Sabroe RA, Grattan CE, Francis DM, Barr RM, Kobza Black A, Greaves MW. The autologous serum skin test as screening test for autoantibodies in chronic idiopathic urticaria. *Br J Dermatol* 1990; **140**: 446–452.

DOI: 10.1111/j.1468-3083.2008.02831.x