

Occupational allergic contact dermatitis to HBTU [(*o*-benzotriazole-10yl)-*N,N,N',N'*-tetramethyluronium hexafluorophosphate]

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(*o*-Benzotriazole-10yl)-*N,N,N',N'*-tetramethyluronium hexafluorophosphate (HBTU; CAS No. 94790-37-1) is a peptide synthesis coupling reagent used in the manufacturing of solid- and solution-phase peptide synthesis. Three cases of immediate allergic reactions to HBTU (1–3) and one case of allergic contact dermatitis have been reported (4).

Case Report

A 37-year-old laboratory technician presented with a 2-year history of hand dermatitis. On one occasion, the dermatitis also involved the periocular and perioral areas of the face, the neck and the leg. The hand dermatitis improved when she was off work and on treatment with topical steroids. She had a history suggestive of possible contact allergy to colophonium, although this

had never been formally tested. She had no other dermatological history or history of atopy. The patient had worked for 14 years in a company that provided technical support for product and process development of foods. Her job involved contact with solvents and peptides. She did not wear gloves until after she developed the dermatitis, and then she used nitrile gloves.

On examination, she had dermatitis involving the dorsum of the hands and the eyelids.

Patch testing was carried out with the British Contact Dermatitis Society baseline series (Chemotechnique Diagnostics™, Vellinge, Sweden), rubber series, HBTU 0.01%, 0.1% and 1% in pet., piperidine 1% in pet., and nitrile gloves 'as is'. Allergens were applied using Finn chambers® on Scanpor® (Epitest Ltd Oy, Tuusula, Finland). Patches remained in place for 2 days and readings were carried out at 2 and 4 days. Readings were carried out according to the ICDRG criteria (5). Positive reactions were observed at 2 and 4 days to colophonium 20% and HBTU 1% (+D2, +D4). Ten control individuals were subsequently patch tested with 1% HBTU in pet., with no reactions observed.

Discussion

There has been one previous reported case of contact allergic dermatitis to HBTU. This patient was a 37-year-old male chemistry researcher who developed contact dermatitis on the face, neck, hands, elbows and ankles. Patch testing showed a positive reaction to HBTU 1%, with all other allergens tested being negative. There were no control subjects tested in this report (4). Three cases of immediate allergic reactions to HBTU have been described. One was a case of contact urticaria (1), another was anaphylaxis and contact urticaria (3) and the third was a report of rhinitis and asthma due to *o*-(benzotriazol-1-yl)-*N,N,N',N'*-tetramethyluronium tetrafluoroborate (TBTU; CAS No. 125700-67-6) and HBTU (2). Our report suggests that HBTU is a contact allergen and that the negative control patch tests reasonably excluded an irritant reaction.

References

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