

Case report

Anaphylactic reaction during immunotherapy related to alcohol consumption

Friis EV, Frederiksen M, Efsen Simonsen E. Anaphylactic reaction during immunotherapy related to alcohol consumption. *Allergy* 1992; 47: 123–124.

E. V. Friis, M. Frederiksen, E. Efsen Simonsen

Department of Medicine, Haderslev Hospital, Denmark

Key words: anaphylaxis; immunotherapy; alcohol consumption.

Elsebeth Vibeke Friis,
Department of Medicine
Haderslev Hospital
Denmark

Accepted for publication 26 June 1991

A case of anaphylaxis related to alcohol consumption during immunotherapy is reported. We advise to consider whether there has been noticeable alcohol consumption prior to each injection.

The incidence of severe allergic reactions caused by insect stings is estimated to 1–10 per 100 000 (3). Immunotherapy is a specific treatment that, when effectively done, can prevent systemic reactions in more than 90% of patients (1). It is particularly during the up dosing phase that the frequency of local and systemic reactions is high. Depending on the principle of up dosing, the incidence of systemic reactions varies from 10–20% in conventional and clustered immunotherapy (2) to about 75% in rush immunotherapy (1).

To our knowledge there have formerly been no cases indicating that alcohol consumption prior to immunotherapy might increase the risk of systemic reactions.

Such a case is reported here.

Case report

The patient was a 37-year-old healthy electrician, who periodically worked in Saudi Arabia. When at work he totally abstained from alcohol.

Because of an anaphylactic reaction provoked by a wasp sting in his hand, he was sent to the local allergological department. Two months later a skin prick test showed a positive reaction to a solution of 100 µg wasp venom/ml. In addition, he had a strongly positive RAST of 132 SU (sorbent units), allergy class 4.

Three months after the wasp sting the patient was

hospitalized during day hours for immunization with an aqueous extract of wasp venom. According to the department's routine, immunotherapy was initiated with a s.c. dose of 0.1 ml 10 SQU (standardized quality units)/ml. This was followed by increasing doses 2–3 times a day by injection in the right and left arms alternately, at intervals of at least 4 h. Only minor local cutaneous reactions were seen. On day 7 a pause of half a day was instituted and the dose reduced owing to a local cutaneous swelling > 8 cm in diameter.

On day 10, the patient, after having been immunized with 0.7 ml 100 000 SQU extract of wasp venom/ml, had a sudden anaphylactic reaction. Five minutes after the injection the patient felt generally unwell, with palpitations, dizziness, vomiting, and universal vasodilation with normal respiration. BP, systolic 90 mmHg. The routine treatment was initiated and the patient rapidly recovered. He was placed under observation for 24 h in the intensive care unit, and no complications were seen.

On the basis of this episode, the immunotherapy regimen was modified to using an aluminium adsorbed wasp extract. After a pause of 4 days the patient was immunized with 0.2 ml 100 000 SQU/ml and hospitalized for 24 h. Subsequently, he was immunized weekly with increasing doses from 0.1 ml until 1.0 ml 100 000 SQU/ml was reached. Hereafter, the patient has been immunized as an out-patient every 6th to 8th week with a maintenance

dose. No systemic reactions occurred and only such local reactions as cutaneous swellings of approx. 2 cm in diameter were seen.

When visiting Denmark during the immunotherapy period the patient had 2 to 3 beers in the evenings. The evening before the anaphylactic reaction the patient had consumed considerably more alcohol than usual – at least 10 to 12 beers – with a perceptible hangover as a result. This had not been noted by the vaccinator – nor mentioned by the patient.

Discussion

The case reported gives cause to consider whether alcohol consumption prior to immunotherapy could result in a lower threshold for inducing anaphylaxis. At no time before or after had the patient demonstrated systemic reactions, and using the same principle of up dosing our department has experienced only few cases of anaphylaxis (50–60 immunizing therapies a year with a complication rate of approximately 25% and, of these, about 1–2% with systemic reactions).

The mechanism is unknown. It may be a debilitation of the immune defence, e.g. by alcohol influencing the release of histamine from mast cells; some studies demonstrate the effect by *in vitro* experiments

on mouse and guinea pig tissues (4). Cutaneous vasodilation, caused by the cerebral effect of alcohol, may also accelerate the absorption of allergen extract or increase the risk of an intravascular injection.

Prior to each injection during immunotherapy, the physician should carefully investigate the patient's general condition by asking about feverishness, viral infections, exacerbations of an existing asthma, reactions following previous immunotherapy, etc. In addition, it is important to find out whether the patient has been drinking a large quantity of alcohol within the last 24 h.

References

1. MALLING HJ, HEINIG JH, MOSBECH H, WEEKE B. Immunotherapy in the treatment of allergic conditions. The indications for and the clinical effects of immunotherapy in allergy to insect stings. *Ugeskr Laeger* 1986; 148: 1953–7.
2. MALLING HJ, DJURUP R, SØNDERGAARD T, WEEKE B. Clustered immunotherapy with yellow jacket venom. Evaluation of the influence of time interval on *in vivo* and *in vitro* parameters. *Allergy* 1985; 40: 373–83.
3. REISMAN RE. Insect allergy. In: MIDDLETON E, REED CE, ELLIS EF (eds.): *Allergy. Principles and practice*. Vol. 2, C.V. Mosby, St. Louis, 1983: 1361–77.
4. WYCZOLKOWSKA J, KORSZAK Z, MASLINSKI C. The effect of ethanol administration into the mouse on mast cell histamine releasability *in vitro*. *Pol J. Pharm Pharmacol* 1984; 36: 641–6.