

Occupational airborne contact allergy to tetrazepam in a geriatric nurse

Kristine Breuer¹, Margitta Worm³, Christoph Skudlik^{1,2}, Claudia Schröder¹, Swen Malte John^{1,2}

(1) Institute for Interdisciplinary Dermatologic Prevention and Rehabilitation (iDerm) of the University of Osnabrück, Location Hamburg, Germany

(2) Institute for Interdisciplinary Dermatologic Prevention and Rehabilitation (iDerm) of the University of Osnabrück, Location Osnabrück, Germany

(3) Allergy Center Charité, Department of Dermatology and Allergy, Charité University Medicine, Campus Mitte, Berlin, Germany

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Summary

A 52-year-old geriatric nurse presented with recurrent eczema localized in uncovered skin areas. Patch testing produced an eczematous skin reaction with type IV sensitization to tetrazepam. A relapse of contact dermatitis was successfully prevented by using occupational skin protection measures and organizational measures. Our case indicates that a sensitization to drugs should be considered when allergic contact dermatitis is suspected in nursing personnel.

Keywords

drug hypersensitivity – occupational skin disease – patch test with drugs

Introduction

The point prevalence of hand dermatitis among geriatric nurses in Germany is about 18 % [1]. Allergic contact dermatitis in nursing personnel is usually caused by sensitization to ingredients of gloves, disinfectants or topical agents. Occupational sensitizations to drugs are relatively rare. Type I allergies to natural rubber latex have decreased distinctly in recent years [2]. Tetrazepam is used as a sedative in geriatric medicine. We report the occurrence of airborne allergic contact dermatitis in type IV sensitization to tetrazepam in a geriatric nurse.

Case report

History

The 52-year-old woman has been employed as a geriatric nurse since 11 years. During night duty she must pulverize tablets. Three years before her first presentation in our department redness, vesicles and fissures appeared for the first time on the hands with the course paralleling work. One year later she regularly developed erythema on uncovered skin areas on the mornings after night duty.

Clinical findings

On the lateral aspect of fingers as well as on the dorsa of the interphalangeal joints erythema and fine scales are seen. On the volar aspect of the right lower arm multiple pinhead-sized erythematous papules

are found. On the upper eyelids, cheek and décolleté erythema is present.

Atopy score according to Diepgen: 14.

Laboratory parameters

Total IgE (FEIA, Pharmacia, Freiburg, Germany) 18 kU/l. Specific IgE towards inhalative allergens (CAP RAST FEIA, allergen mix sx1, Pharmacia) < 0.10 kU/l.

Skin tests

Prick tests: In testing with ubiquitous inhalative allergens (ALK Abelló, Wedel, Germany), latex (Stallergenes, Kamp-Lintfort, Germany), diazepam and midazolam tablets (each 30 % in aqua ad inject.) negative reactions after 20 min and 24 h.

Patch testing: Patch testing according to the recommendations of the German Contact Dermatitis Research Group: standard series, vehicles/emulsifiers, preservatives, rubber chemicals, disinfectants, fragrances with mandatory declaration, other fragrances and essential oils, patient's own occupational contacts: irritant reaction with fragrance mix.

Drugs from the workplace among others tetrazepam tablets as well as nitrazepam, diazepam, oxazepam, lormetazepam, flunitrazepam tablets, each 30 % in petrolatum, 30 % in aqua ad inject.: erythema, infiltration (+) with tetrazepam after 24 h, erythema, infiltration, vesicle (++) after 48 and 72 h (Figure 1), after 72 h flare up of erythema on upper eyelids, décolleté and lower arms (Figure 2).

Double-blind, placebo-controlled exposition testing: diazepam (1.25 mg, 2.5 mg, 5 mg orally), midazolam (3.75 mg i.v. in the morning and evening), placebo for two days each: no reaction.

Discussion

We made the diagnosis of occupational airborne allergic contact dermatitis with type IV sensitization to tetrazepam tablets as well as cumulative subtoxic (irritant) hand dermatitis in atopic diathesis. Topical therapy resulted in rapid healing of the dermatitis. A skin protection program was instituted and organizational measures undertaken; pulverizing tetrazepam tablets was delegated to coworkers. A recurrence after return to work could thus be avoided.

Tetrazepam (CB 4261; 7-chloro-5-(cyclohex-1-enyl)-1,3-dihydro-1-methyl-2H-1,



Figure 1: ++ patch test reaction (72 h) to tetrazepam 30 % in pet., 30 % in aq.



Figure 2: Flare-up under patch test (72 h after application of tetrazepam).

4-benzodiazepin-2-one) is a benzodiazepine. Cutaneous side effects of therapy with tetrazepam are rare; in a US-American data bank (Boston Collaborative Drug Surveillance Program) only 2 cases of cutaneous side effects among 4,767 patients were reported [3]. In the literature predominantly exanthemas after use of tetrazepam are reported [4, 5]. To date five cases of airborne allergic contact dermatitis due to tetrazepam have been reported, among others in the pharmaceutical industry [5, 6]. The case of a geriatric nurse who developed cutaneous lesions on exposed skin after pulverizing tetrazepam tablets has been reported [7].

A non-occupational allergic contact dermatitis occurred after pulverizing tetrazepam tablets during home nursing of family members [8]. Patch tests with tetrazepam were always positive.

Cross-reactions to other benzodiazepines could not be demonstrated in our patient in the patch test and in exposition testing. Due to the marked reaction in the patch test we waived an exposition with tetrazepam.

Kämpgen et al. observed a positive patch test reaction to tetrazepam and diazepam, which possesses great structural homology with tetrazepam, but not to flunitrazepam and midazolam, in a

woman with maculopapular exanthema [9].

In allergic contact dermatitis to tetrazepam patch test reactions to clorazepate and diazepam occurred, but not to the structurally related drugs valproate and valpromide to which contact also existed. This may be a case of coupled allergy [8].

In other cases of allergic exanthemas or allergic contact dermatitis patch testing or provocation testing with further benzodiazepines revealed no test reactions [4–6, 10]. Oral provocation testing with alternative benzodiazepines was only performed in one patient with allergic contact dermatitis [7]; provocation with midazolam was well-tolerated here; after exposition with flunitrazepam conjunctival symptoms developed which were attributed to the grass pollen release.

In nursing personnel exposure to tetrazepam should be considered. As intolerance reactions after intake of benzodiazepines in patients with allergic contact dermatitis are possible on pathophysiologic grounds, provocation/ exposition testing should be performed. <<<

Conflicts of interest

None.

Correspondence to

Priv.-Doz. Dr. Kristine Breuer
iDerm
Bergedorfer Straße 10
D-21033 Hamburg, Germany
Tel.: +49-40-7306-3261
Fax: +49-40-7306-3203
E-mail: k.breuer@buk-hamburg.de

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