

Occupational asthma and allergic rhinitis due to xerographic toner

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Key words: methacrylates; occupational asthma; sick building syndrome; xerographic toner.

Acrylates are described as occupational asthmogens (1, 2), but to our knowledge, there are no published data on xerographic toner-induced allergic asthma.

Black xerographic toner basically consists of carbon black in binder resins, such as polystyrene-*n*-butyl methacrylate,

polystyrene-*n*-butyl acrylate, etc. While taking photocopies, ozone, magnetizable metallic oxides, and components of thermally activated toner are released.

We present the case of a 44-year-old nonsmoking woman, who had been working for 8 years as a secretary in a primary school. For the past 2 years, she had been suffered from rhinorrhea, dyspnea and cough attacks, occurring 15–20 min after beginning of taking black and white photocopies, using toner containing polystyrene-*n*-butyl methacrylate. The patient reported only work-related symptoms.

Clinical examinations, as well as routine laboratory parameters, remained normal. The total IgE (CAP System, Pharmacia, Uppsala, Sweden) level was low (18.04 ku/l). Skin prick tests to common allergens (Allergopharma, Hamburg, Germany) were negative. The histamine provocation test showed bronchial hyperreactivity ($PC_{20} = 2.16$ mg/ml).

The patient was subjected to subsequent single-blind bronchial challenge tests with: thermally activated (80°C) methyl methacrylate, thermally activated (80°C) polystyrene, placebo (potato flour), and test at work-place-like conditions (taking photocopies for 30 min) monitored by spirometry and peak

A case of occupational asthma and rhinitis caused by xerographic toner, confirmed by specific bronchial provocation.

expiratory flow rate measurements. At the 18th minute of taking photocopies clinical symptoms of dyspnea, and a 21% fall in forced expiratory volume (FEV_1), followed by 24% fall at 1 h, and 19% decrease at 4 h were observed. The provocation with methyl methacrylate induced a 30% fall in FEV_1 at 1 h, with 24% decrease 4 h later. Tests with polystyrene and placebo did not cause any clinical or spirometric changes. Nasal lavage fluid was obtained 10 min before, and 30 min, 2, 4, and 24 h after the challenge. Only the work-place-like test and challenge test with methyl methacrylate, induced cellular and biochemical changes in nasal lavage. The increase in eosinophil proportion, up to 6% (work-place like) and 8% (methyl methacrylate) (Fig. 1), and permeability index (from 6.5% to 16.1% and from 9.1% to 19.7%, respectively) at 24 h were observed.

The reason for recognition of methyl methacrylate-induced asthma and rhinitis in this patient was the clinical response during specific challenge tests accompanied by changes in nasal lavage fluid. Asthma caused by xerographic toner is characteristic of the 'office microenvironment' and may be treated as one of those diseases related to 'sick building syndrome'.

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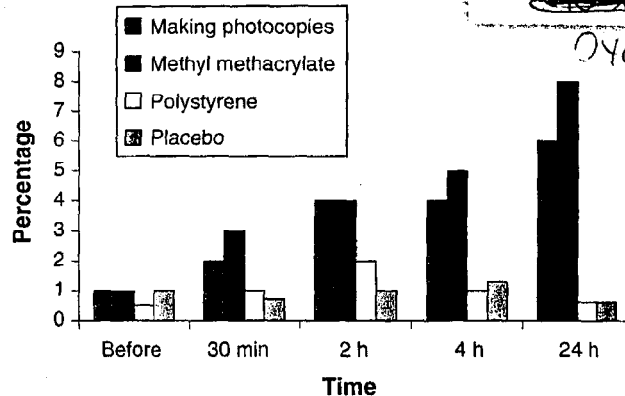


Figure 1. The proportion of eosinophils in nasal lavage fluid after challenge tests.

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Occupational contact allergy to ceftiofur

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Key words: ceftiofur; cephalosporins; contact allergy; contact dermatitis; cross reactivity; occupational.

Ceftiofur sodium (Excenel®, Pharmacia & Upjohn, Kalamazoo, MI) is a third-generation cephalosporin meant for exclusive veterinary use. This is mainly used for treating respiratory infections in pigs and cows

A case of extensive dermatitis for occupational contact allergy to ceftiofur (without cross-reactivity to other cephalosporins) is reported.