

ocular toxicity as manifestations of the drug hypersensitivity. Tomonaga (5) described the case of a 46-year-old male tuberculosis patient who developed acute renal failure and liver dysfunction after oral administration of rifampicin and demonstrated IgG and IgM specific to formylrifampicin.

In conclusion, this patient had a cutaneous hypersensitivity reaction, together with hepatitis and nephritis, after receiving rifampicin. The desensitization procedure using rifampicin was well tolerated but did not prevent relapse of the reaction on readministration. Although skin tests with rifampicin were positive, it is unlikely that the reaction was IgE-mediated. Thus, it is not advisable to perform desensitization to rifampicin in cases with associated hepatitis and nephritis.

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Occupational asthma caused by aluminium

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Key words: aluminium; bronchial challenge; OASYS; occupational asthma; peak flow.

● RESPIRATORY disease in aluminium potroom workers has been well recognized since the first Norwegian report in 1936 (1). There is still controversy whether this is an irritant reaction to hydrogen fluoride or a specific reaction to aluminium fluoride. We report the first case of aluminium asthma in a foundry worker with a positive specific challenge test to aluminium chloride, raising the possibility that potroom asthma is due to a reaction to aluminium fluoride.

Peak expiratory flow (PEF) was measured two-hourly at work and at home for 5 weeks while the patient was taking salbutamol as required, and plotted with OASYS-2 (2). Nonspecific reactivity to histamine was

measured by the Yan technique (3). Specific challenges were

done by nebulizing solutions diluted in normal saline for a maximum of 5 min.

Potassium chloride

10 mg/ml (pH 3.47) and aluminium chloride 1 mg/ml (pH 4.42) and 10 mg/ml (pH 3.47) were used on separate days.

A 46-year-old smoker developed cough and chest tightness starting 3 h after coming to work, and improving on days away from work. He had worked as a caster of molten aluminium for 19 years in a rolling mill. Ingots of aluminium were melted and degassed with chlorine before being cast into billets in an atmosphere of argon. He was nonatopic on skin testing, with total IgE 210 kU/l and peripheral blood eosinophils $0.4 \times 10^9/l$. Baseline spirometry showed airflow obstruction (FEV₁/FVC 2.56/4.72, predicted 3.53/4.32), and moderate histamine reactivity (PC₂₀ 1.2 µmols). Two-hourly PEF measurements showed a significant occupational effect (OASYS-2 score 2.67, positive >2.51), with a diurnal variation of less than 20%. Specific bronchial provocation testing showed a dual asthmatic reaction after a 3-min exposure to aluminium chloride 10 mg/ml (Fig. 1), with a negative reaction to potassium chloride 10 mg/ml at the same pH. After diagnosis, he was reassigned to work as a fork-lift

The first report documented by serial PEF and challenge tests.

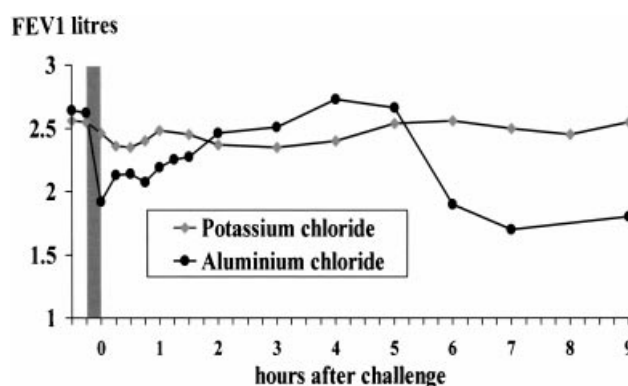


Figure 1. Bronchial provocation testing to aluminium chloride and potassium chloride.

truck driver outside the foundry. His nonspecific reactivity returned to normal, and his serial PEF record showed no work-related effect (OASYS-2 score 1.73), but he still had asthmatic symptoms in relation to nonspecific stimuli.

This is the first case of a worker with fully documented occupational asthma due to an aluminium salt. Serial PEF measurements showed low diurnal variation, as seen in some potroom workers (4), and an OASYS-2 score of 2.67 (specificity 94%) (2). The challenge testing showed a dual reaction to aluminium chloride with a 34% late fall in FEV₁, documenting asthma as well as a reaction to the aluminium chloride, and this was controlled with potassium chloride at the same pH. Aluminium welding (5), and cable jointing, using aminoethylethanolamine as a flux (6), have also caused occupational asthma.

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Air purification and indoor biologic pollutants

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Key words: air purification; indoor pollutants.

● SENSITIZING stimulants are numerous and of many kinds, and among these we can include contaminants of biologic origin represented by airborne organic particles such as bacteria, pollen grains, dust mites, and fungal spores, which constitute the major problem in confined spaces for those who suffer from respiratory diseases and allergies. Some of the major allergens are encountered not outdoors but indoors (1–4). Moreover, improved methods of constructing and ventilating houses, public buildings, and factories need to be found to decrease the risk of exposure to perennial or occupational allergens. It is therefore of primary importance to keep the environment under constant control as a preventive measure against such allergies, thus benefiting domestic and business premises in which airborne pollutants can be readily dispersed (5, 6).

The aim of our study was to examine how the total concentration of biologic indoor pollutants can be reduced with an air purifier: the Ecomed[®] Ghibli/Byomek (Leiber Italia s.r.l.), a biomechanical appliance for cleaning the air by means of a

wet disk system (power consumption 15 W and delivery capacity 98 m³/h). Aerobiologic sampling was done with the VPS1000 Lanzoni spore trap. To minimize the effects due to variable conditions of the outdoor atmosphere, we monitored simultaneously two adjacent rooms of the same form, amplitude, and window apertures, each with a spore trap, but only one (room 1) with the air purifier functioning during the periods indicated in Fig. 1. From rooms selected in the houses of each of nine volunteers, seven samples of household dust were drawn onto Mitest filters (ALK) by a vacuum cleaner. Dust was collected at fixed times without further cleaning during the days between one sample collection and the next (4 days). The samples drawn were analyzed, after extraction, for the presence of Der p 1 (*Dermatophagoides pteronyssinus*), Der f 1 (*D. farinae*), Fel d 1 (cat), Bla g 2 (*Blattella germanica*) by the Elisa-Dust Screen (ALK). From days 7 to 21 of each period of observation, the air cleaner was made to function 24 h a day.

The aerobiologic data collected during the course of our study show how the air purifier can reduce significantly the concentration of indoor allergens ($P<0.001$). Moreover, our study shows that the principal dust mite found in houses, as determined by the presence of the antigen, was *D. farinae*. The cat allergen Fel d 1 was also present, even if at low concentrations or merely traces, in eight out of nine of the houses despite the fact that none of these had ever sheltered a cat. The cockroach allergen Bla g 2 did not appear to be present in any of the homes examined. The air-purifying appliance can reduce significantly ($P<0.05$) the presence of the analyzed allergen Der f 1 in household dust.

In indoor living conditions, the situations at risk are present especially in communities where airing may be insufficient if not impossible, and where, due to inadequate or lack of maintenance, air-conditioning