

LETTERS

Occupational asthma after exposure to *ortho*-phthalaldehyde (OPA)

Ortho-phthalaldehyde (OPA) is an aromatic dialdehyde that has largely replaced glutaraldehyde as a new high-level disinfectant for heat-sensitive medical devices, including endoscopes. It is a low-molecular-weight chemical with in vivo dermal and respiratory sensitising properties.^{1 2} Reports of immunological reactions have been reported in workers exposed to OPA-disinfected cystoscopes.³

We describe the case of a 55-year-old woman who consulted at the emergency department with dyspnoea, wheezing, conjunctival redness and low peak expiratory flow. She had been promoted to the endoscopic sterilisation service of a regional hospital 2 months earlier, where OPA (Cidex OPA) was used for disinfection of endoscopes. Symptoms developed after 3 weeks of exposure but subsided during the evening and disappeared on weekends. She was known for hypertension and had quit smoking 20 years earlier (15 pack-years of cigarettes). She had no personal or family history of asthma. Chest radiograph and blood work up were normal at the time of assessment. Her condition led to prompt removal from work and treatment with an inhaled corticosteroid plus short-acting β_2 -agonists on demand. The patient improved and her pulmonary function normalised. However, she had persistence of a non-allergic airway responsiveness, with a provocative concentration of methacholine causing a 20% fall in forced expiratory volume in one second ($PC_{20}FEV_1$) of 0.87 mg/mL. The patient could not return to work because of rapidly disabling symptoms.

The patient was referred for a specific bronchoprovocation test with Cidex OPA

(figure 1). Baseline FEV_1 was 2.78 L (91% of predicted value) on control day and did not significantly change after inhaling nebulised saline. When the patient was exposed to OPA the day after, she developed conjunctival redness and cough. A late asthmatic response was observed, with a 43% fall in FEV_1 4 h after exposure. The day following the challenge, FEV_1 was 1.57 L (52% predicted), but the patient recovered quickly with inhaled bronchodilators and prednisone.

DISCUSSION

This is, to our knowledge, the first case of occupational asthma induced by exposure to OPA in a healthcare worker, proven with a specific inhalation challenge. This confirms OPA's potential to act as a respiratory sensitizer. Indeed, OPA may enhance tissue infiltration of inflammatory cells and increase the production of allergen-specific IgE, suggesting a role as an immunological adjuvant.^{1 2} Another case of suspected occupational asthma and contact dermatitis diagnosed on a clinical basis was previously described in a medical worker.⁴ Furthermore, questionnaires administered in endoscopic units showed that 9–16% of workers had experienced skin, respiratory or ocular symptoms when exposed to OPA.⁵ Preventative measures have been suggested for OPA handling, including automatic washing procedures, better ventilation and proper personal protective devices.^{1 5} OPA air levels should be kept as low as possible, but at present no exposure threshold limit is available in the occupational setting.

In conclusion, the possibility of occupational asthma should be considered in healthcare workers experiencing respiratory symptoms when exposed to OPA.

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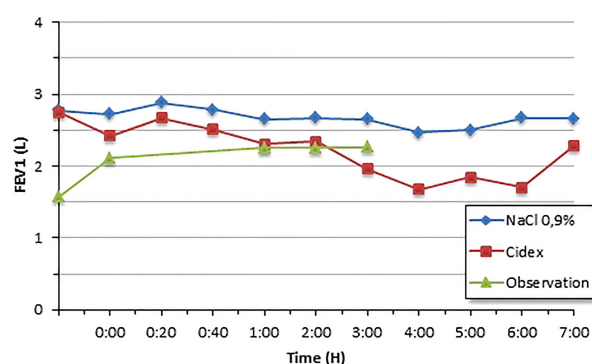


Figure 1 Specific bronchoprovocation test with Cidex *ortho*-phthalaldehyde (FEV_1 , forced expiratory volume in 1 s).

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