Experimental inhalation of fragrance allergens in predisposed subjects: effects on skin and airways.

Abstract:
Exposure to fragrances is increasingly encountered in the environment. Some fragrances are known to be important skin and potential airway sensitizers. We investigated whether patients with contact allergy to isoeugenol (ISO) or hydroxyisohexyl-3-carboxaldehyde (HICC) would react to inhalation exposure at the level of the airways and skin. Eleven patients sensitized to ISO and 10 patients sensitized to HICC were exposed for 60 min to 1000 microg m\(^{-3}\) of these compounds in an exposure chamber at rest, and to geraniol 1000 microg m\(^{-3}\) as a control. Patients wore protective clothing to prevent skin exposure. Assessments were performed prior to exposure, and immediately, 2, 5, 24 and 72 h afterwards. There were no significant changes in lung function but a tendency towards an increased bronchial hyper-responsiveness after exposure to any of the compounds. Laboratory parameters of inflammation did not indicate responses. Single patients reported respiratory symptoms unrelated to objective measures. In contrast, the observed skin symptoms corresponded to the patients’ specific sensitization. Four patients reported symptoms compatible with delayed-type hypersensitivity, and two demonstrated a flare after ISO. On re-exposure they did not respond to a lower, more realistic level of
ISO. Inhalation of high concentrations of fragrance contact allergens apparently poses a risk for some patients of developing manifest haematogenic contact dermatitis, while the changes in the respiratory tract are limited to symptoms in some subjects without objective changes.