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Self-reported occupational exposure to disinfectants and asthma control in U.S. nurses

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Abstract

Healthcare workers are at higher risk of work-related asthma, possibly due to occupational exposure to disinfectants. However, the association between occupational exposure to specific disinfectants and asthma control is not known. We investigated this issue in the Nurses' Health Study II, a large prospective cohort study of U.S. female nurses enrolled in 1989.

Nurses with asthma were invited in 2014 to complete two supplemental questionnaires on their: 1) current occupation, including the frequency of disinfecting tasks and use of disinfectants, and 2) asthma. Among 3,357 nurses (mean age: 58 years) with physician-diagnosed asthma and asthma medication use in the past year, we examined asthma control, as defined by the Asthma Control Test (ACT; last 4 weeks). Associations between disinfectant exposure and asthma control were evaluated by logistic regression, adjusted for age, race, ethnicity, smoking status, and body mass index.

Asthma was controlled (ACT=25) in 32% of nurses and partly controlled (20-24) in 50%; control was poor (16-19) in 12% and very poor (≤ 15) in 6%. Weekly use of disinfectants to clean medical instruments (18% exposed) was associated with poorly (odds ratio [OR] 1.41; 95%CI: [1.04-1.89]) and very poorly (1.82 [1.27-2.61]) controlled asthma (trend $P=0.001$). No association was observed for cleaning surfaces. Self-reported use of hypochlorite bleach (20%, OR 1.24 [0.98-1.82]), ammonia (1%, 3.16 [1.11-8.99]) and sprays (18%, 1.42 [1.06-1.90]) were associated with poor control (ACT<20).

Hide

More info

In a large study of U.S. nurses, disinfecting tasks were associated with poor asthma control. The role of specific products will be further evaluated using a job-exposure matrix.

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