Dangers of Disinfectants

Hypochlorous Acid should be the Gold Standard for Fighting Coronavirus

Hydrogen Peroxide and Para Acetic Acid

› Am J Infect Control. 2017 Oct 1;45(10):1133-1138. doi: 10.1016/j.ajic.2017.04.003. Epub 2017 May 23.

Health problems and disinfectant product exposure among staff at a large multispecialty hospital

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Abstract

Background: Hospital staff expressed health concerns after a surface disinfectant product containing hydrogen peroxide, peracetic acid, and acetic acid was introduced. We sought to determine if this product posed a health hazard.

Methods: An interviewer-administered questionnaire on work and health characteristics was completed by 163 current staff. Symptoms that improved away from work were considered work-related. Forty-nine air samples were taken for hydrogen peroxide, peracetic acid, and acetic acid. Prevalence ratios (PRs) were calculated using Poisson regression, and standardized morbidity ratios (SMRs) were calculated using nationally representative data.

Results: Product users reported higher prevalence of work-related wheeze and watery eyes than nonusers ($P < .05$). Workers in the department with the highest air measurements had significantly higher prevalence of watery eyes (PR, 2.88; 95% confidence interval [CI], 1.18-7.05) than those in departments with lower air measurements, and they also had a >3-fold excess of current asthma (SMR, 3.47; 95% CI, 1.48-8.13) compared with the U.S.

Conclusions: This disinfectant product was associated with mucous membrane and respiratory health effects. Risks of mucous membrane irritation and asthma in health care workers should be considered in development of disinfection protocols to protect patients from hospital-acquired infections. Identification of optimal protocols that reduce worker exposures while maintaining patient safety is needed.

> Eur Respir J. 2017 Oct 5;50(4):1700237. doi: 10.1183/13993003.00237-2017. Print 2017 Oct.

Occupational exposure to disinfectants and asthma control in US nurses

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Abstract

Disinfectant use has been associated with adverse respiratory effects among healthcare workers. However, the specific harmful agents have not been elucidated. We examined the association between occupational exposure to disinfectants and asthma control in the Nurses' Health Study II, a large cohort of female nurses.Nurses with asthma were invited in 2014 to complete two questionnaires on their current occupation and asthma (response rate 80%). Asthma control was defined by the Asthma Control Test (ACT). Exposure to major disinfectants was evaluated by a job-task-exposure matrix (JTEM).Analyses included 4102 nurses with asthma (mean age 58 years). Asthma control was poor (ACT score 16-19) in 12% of nurses and very poor (ACT score ≤15) in 6% of nurses. Use of disinfectants to clean medical instruments (19% exposed) was associated with poorly (OR 1.37; 95% CI 1.05-1.79) and very poorly (OR 1.88, 95% CI 1.38-2.56) controlled asthma (p_{trend}=0.004, after adjustment for potential confounders). Using JTEM estimates, exposure to formaldehyde, glutaraldehyde, hypochlorite bleach, hydrogen peroxide and enzymatic cleaners was associated with poor asthma control (all p_{trend}<0.05); exposure to quaternary ammonium compounds and alcohol was not.Use of several disinfectants was associated with poor asthma control. Our findings suggest targets for future efforts to prevent worsening of asthma control in healthcare workers.

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Review > J Investig Allergol Clin Immunol. 2010;20(7):542-50; quiz 2p following 550.

Cleaning agents and asthma

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Abstract

Although cleaners represent a significant part of the working population worldwide, they remain a relatively understudied occupational group. Epidemiological studies have shown an association between cleaning work and asthma, but the risk factors are uncertain. Cleaning workers are exposed to a large variety of cleaning products containing both irritants and sensitizers, as well as to common indoor allergens and pollutants. Thus, the onset or aggravation of asthma in this group could be related to an irritant-induced mechanism or to specific sensitization. The main sensitizers contained in cleaning products are disinfectants, quaternary ammonium compounds (such as benzalkonium chloride), amine compounds, and fragrances.The strongest airway irritants in cleaning products are bleach (sodium hypochlorite), hydrochloric acid, and alkaline agents (ammonia and sodium hydroxide), which are commonly mixed together. Exposure to the ingredients of cleaning products may give rise to both new-onset asthma, with or without a latency period, and work-exacerbated asthma. High-level exposure to irritants may induce reactive airways dysfunction syndrome. Cleaning workers may also have a greater relative risk of developing asthma due to prolonged low-to-moderate exposure to respiratory irritants. In addition, asthma-like symptoms without confirmed asthma are also common after exposure to cleaning agents. In many cleaners, airway symptoms induced by chemicals and odors cannot be explained by allergic or asthmatic reactions. These patients may have increased sensitivity to inhaled capsaicin, which is known to reflect sensory reactivity, and this condition is termed airway sensory hyperreactivity.

Review > J Cosmet Dermatol. 2020 Feb;19(2):270-277. doi: 10.1111/jocd.13280. Epub 2020 Jan 6.

Topical stabilized hypochlorous acid: The future gold standard for wound care and scar management in dermatologic and plastic surgery procedures

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Abstract

Background: Hypochlorous acid (HOCl), a naturally occurring molecule produced by the immune system, is highly active against bacterial, viral, and fungal microorganisms. Moreover, HOCl is active against biofilm and increases oxygenation of the wound site to improve healing. Natural HOCl is unstable; through technology, it can be stabilized into an effective topical antiseptic agent.

Aim: This paper focuses on the use of topical stabilized HOCl in wound and scar management for pre-, peri-, and postprocedures-including its ability to reduce the occurrence hypertrophic scars and keloids. The role of the product in other skin conditions is beyond the scope of this article.

Methods: A panel comprising clinicians with experience in cosmetic and surgical procedures met late 2018 to discuss literature search results and their own current clinical experience regarding topical stabilized HOCl. The panel of key opinion leaders in dermatology and plastic surgery defined key insights and consensus statements on the direction of use for the product.

Results: Topical stabilized HOCl provides an optimal wound healing environment and, when combined with silicone, may be ideal for reducing scarring. Additionally, in contrast to chlorhexidine, HOCl, used as an antiseptic skin preparation, raises no concerns of ocular- or ototoxicity.

Conclusions: For wound care and scar management, topical stabilized HOCl conveys powerful microbicidal and antibiofilm properties, in addition to potency as a topical wound healing agent. It may offer physicians an alternative to other less desirable wound care measures.

Keywords: hypertrophic scars; keloid scars; scar management; stabilized hypochlorous acid; wound care.

Hypochlorous Acid: A Review

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Abstract

The surgeon needs to have an inexpensive, available, nontoxic, and practical disinfectant that is effective in sanitizing against the COVID-19 (Coronavirus Disease 2019) virus. The purpose of this article was to review the evidence for using hypochlorous acid in the office setting on a daily basis. The method used to assemble recommendations was a review of the literature including evidence for this solution when used in different locations and industries other than the oral-maxillofacial clinic facility. The results indicate that this material can be used with a high predictability for disinfecting against the COVID-19 (Coronavirus Disease 2019) virus.