

Nurses' regular use of disinfectants is associated with developing COPD

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Summary:

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Dr Orianne Dumas (PhD) from INSERM, Villejuif, France, will tell the European Respiratory Society International Congress today (Monday) that certain tasks involving frequent exposure to disinfectants, such as cleaning surfaces, and specific chemicals in disinfectants, were associated with a 22% to 32% increased risk of developing COPD.

Dr Dumas and her colleagues analysed data from 55,185 female registered nurses enrolled in the US Nurses' Health Study II, which started in 1989. They looked at those nurses who were still in a nursing job and with no history of COPD in 2009, and then followed them for approximately eight years until May 2017. During that time 663 nurses were diagnosed with COPD. The nurses' exposure to disinfectants was evaluated via a questionnaire and a matrix that assigns exposure to disinfectants by job or task. The results were adjusted for factors that might affect the outcome, such as smoking, age, body mass index and ethnicity.

"We found that nurses who use disinfectants to clean surfaces on a regular basis -- at least once a week -- had a 22% increased risk of developing COPD," says Dr Dumas. "There was a suggestion of a link with the weekly use of disinfectants to clean instruments but this was not statistically significant."

The researchers also looked at exposure to specific disinfectants: glutaraldehyde (a strong disinfectant used for medical instruments), bleach, hydrogen peroxide, alcohol and quaternary ammonium compounds (known as "quats," mainly used for low-level disinfection of surfaces such as floors and furniture). All of these were associated with an increased risk of COPD of between 24% to 32%.

"In our study population, 37% of nurses used disinfectants to clean surfaces on a weekly basis and 19% used disinfectants to clean medical instruments on a weekly basis," Dr Dumas will tell the congress.

Previous studies have linked exposure to disinfectants with breathing problems such as asthma among healthcare workers. "The potential adverse effects of exposure to disinfectants on COPD have received much less attention, although two recent studies in European populations showed that working as a cleaner was associated with a higher risk of COPD. To the best of our knowledge, we are the first to report a link between disinfectants and COPD among healthcare workers, and to investigate specific chemicals that may underlie this association," she says.

"Our findings provide further evidence of the effects of exposure to disinfectants on respiratory problems, and highlight the urgency of integrating occupational health considerations into guidelines for cleaning and disinfection in healthcare settings such as hospitals.

"These are preliminary findings and more research needs to be carried out. In particular, we need to investigate the impact on COPD of lifetime occupational exposure to chemicals and clarify the role of each specific disinfectant. We hope to receive funding from the US Centers for Disease Control and Prevention to continue this important work.

"Some of these disinfectants, such as bleach and quats, are frequently used in ordinary households, and the potential impact of domestic use of disinfectants on COPD development is unknown. Earlier studies have found a link between asthma and exposure to cleaning products and disinfectants at home, such as bleach and sprays, so it is important to investigate this further."

Dr Dumas emphasises that, as this is an observational study, the findings cannot show that disinfectants cause COPD, only that there is an association between some disinfectants and the development of the disease.

The Nurses' Health Study II is coordinated at the Channing Division of Network Medicine, Brigham and Women's Hospital and Harvard Medical School, Boston, Massachusetts, USA.

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