New York State Department of Health
Center for Environmental Health

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Impulse oscillometry and respiratory symptoms in World Trade Center responders, 6 years post-9/11

(Lung 2010;188:107–113)

Introduction

This study evaluated whether impulse oscillometry (IOS) testing revealed signs of respiratory disease in New York State (NYS) World Trade Center (WTC) responders in comparison with unexposed NYS employees. It also compared self-reported respiratory symptoms between the two groups, 6 years post-9/11.

Methods

Participants completed a self-administered questionnaire regarding respiratory symptoms. IOS testing included measures to assess for peripheral (small) versus central (large) airway effects.

Findings

Two hundred forty-eight subjects (99 exposed and 149 unexposed) were included in the final analysis. Since September 11, 2001, NYS responders were more likely to report new or worsening cough in the absence of a respiratory infection, cough consistent with chronic bronchitis, current respiratory symptoms, or lower respiratory symptoms in the last 12 months. When comparing exposed and unexposed participants, there were no significant differences in the IOS test results. Responders who used a respirator with canister demonstrated significantly lower respiratory resistance at 5 and 20 Hz (R5 and R20).

Conclusions

While this study has provided no evidence of an association between WTC exposure and peripheral (small) airways disease in this group of responders, results do suggest that use of a respirator with canister may be protective for central (large) airways in responders exposed to dust and smoke. This emphasizes the importance of stressing proper respirator use in planning responses to future disasters. Our control data also provide useful reference values for future IOS research.

If you have any questions or would like more information about this study, please contact:

Matthew P. Mauer, DO, MPH
NYS Department of Health
Center for Environmental Health
Bureau of Occupational Health
1-800-458-1158, ext. 27900