

Second Hand Smoking Is Associated With Chronic Cough And Sputum Production

M Movahed, N Milne

Citation

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Abstract

Background: Smoking is a major cause of cardiovascular and respiratory disease. Second hand smoking has been associated with respiratory symptoms. We studied the prevalence of chronic cough and sputum production as a surrogate of pulmonary abnormalities in patients with second hand smoking.

Methods: One hundred thirty nine patients from a Veterans' Administration Medical Center who underwent left ventricular ejection fraction measurements for clinical reasons, were evaluated for the presence of chronic cough and sputum production and history of second hand smoking. Using Fisher's Exact and Chi Square Test, we evaluated any association between second hand smoking and chronic cough and sputum production.

Results: Second hand smoking was significantly associated with chronic sputum production (second hand smoker (17 of 41, 41.5% vs 2 of 18, 11.19% in control OR: 5.7 CI 1.2-27.9, $p=0.02$). There was a trend toward increased prevalence of cough in patient with second hand smoking (19 of 41, 46.3.5% vs 4 of 18, 22.2% in control group OR: 3.0 CI 0.85-10.8, $p=0.08$)

Conclusion: Second hand smoking is associated with chronic cough and sputum production. This study suggests that second hand smoking has deleterious effect on the lung function.

BACKGROUND

Smoking is a major cause of cardiovascular and respiratory disease. Many epidemiological studies have found that cigarette smoking is by far the most important risk factor for chronic obstructive lung disease (COPD)¹ and is associated with more respiratory symptoms and lung function abnormalities.^{2,3,4} Up to 33% of non-smoker are reported to have regular exposure to passive smoking⁵ suggesting that second hand smoking is very prevalent in the population. Furthermore, passive smoking has found to be associated with COPD^{6,7,8}, pneumonia⁷, and poorer asthma outcomes.⁹ Using a Veterans' Medical Center database, we evaluated the prevalence and association of chronic sputum production and cough as a measure of pulmonary abnormalities in patients with second hand smoking.

METHODS

Randomly selected cases of 139 patients at the Long Beach Veterans' Administration Medical Center (VA) in California, who underwent left ventricular function assessment for

clinical indications were studied. Medical histories including history of chronic sputum production, cough and history of second hand smoking were documented. Data about the severity and type of second hand smoking or severity of symptoms were not available. Using Fisher's Exact and Chi square Test, we evaluated any association between the second smoking with cough and chronic sputum production.

RESULTS

Male gender was predominant in a VA population (91%). There was no difference in regards to gender, history of coronary artery disease, valvular abnormalities, diabetes, cancer, and hypertension or ejection fraction between the patients with or without second hand smoking, cough or chronic sputum production. Second hand smoking was significantly associated with chronic sputum production (second hand smoker (17 of 41, 41.5% vs 2 of 18, 11.19% in control group OR: 5.7 CI 1.2-27.9, $p=0.02$). There was a trend toward increase prevalence of cough in patients with second hand smoking (19 of 41, 46.3.5% vs 4

of 18, 12.2% OR: 3.0 CI 0.85-10.8, $p=0.08$).

DISCUSSION

Our results are consistent with most previous studies finding that second hand smoking has significant negative effect on respiratory function expressed by chronic cough or sputum production and appears to be very common with a prevalence of over 40%. This result is consistent with previous studies showing an increase risk of 40 to 100%.

^{7,10,11} In addition to the lung damage, passive smoking has been associated with increase risk of lung cancer and stroke.^{7,12,13} Furthermore, coronary artery disease (CAD) is leading cause of death in the united state. Meta analysis and case control studies has shown increased risk of CAD in passive smokers. ^{7,14,15} Based on our and other published data, second hand smoking has deleterious effect on multiple organ system. Therefore, every effort should be made to decrease the second hand smoking exposure in order to decrease morbidity and mortality in the population.

CONCLUSION

Second hand smoking and the length of smoking are associated with chronic cough and sputum production. This study suggests that second hand smoking has deleterious effect on the lung function.

LIMITATION

This study was not a prospective randomized trial limiting our study. Men were the predominant gender limiting our results to men. The number of patients was small and the severity of cough or sputum production was not documented. Furthermore, the severity and type of second hand smoking were not documented.

CORRESPONDENCE TO

M. Reza Movahed, MD, PhD, FACP, FACC, FSCAI, FCCP Associate Professor of Medicine Director of Coronary Care Unit Sarver Heart Center University of Arizona Department of Medicine, Section of Cardiology 1501 North Campbell

Ave. Tucson, AZ, 85724 Tel: (520)-626-2000

(949)-400-0091 E mails: rmovahed@email.arizona.edu

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Author Information

Mohammad-Reza Movahed, M.D.

Section of Cardiology, Department of Medicine, University of Arizona Sarver Heart Center

Norah Milne, M.D.

Department of Radiology, Division of Nuclear Medicine, University of California, Irvine Medical Center