Occupational

The association between World Trade Center-exposure and obstructive sleep apnea in firefighters Ankura Singh* Ankura Singh Rachel Zeig-Owens David Appel David J. Prezant Mayris P. Webber

Background

Obstructive sleep apnea (OSA) is a common, potentially life-threatening condition. Prevalence increased in the last 2 decades, and was recently estimated to be 26% in adults, although estimates vary considerably. Previously, we reported that 44% of Fire Department of the City of New York (FDNY) World Trade Center (WTC)-exposed workers were at high risk of OSA based on a screening survey.

Objective

To estimate the association between WTC exposure and self-reported OSA diagnoses in WTC-exposed FDNY and non-WTC-exposed non-FDNY firefighters.

Methods

10,020 WTC-exposed FDNY firefighters and 3,513 non-WTC-exposed firefighters from the Chicago, Philadelphia and San Francisco fire departments who were employed on 9/11/01 were included in the analyses. Each completed a health survey that included questions about OSA diagnoses by a health professional and recency of a doctor visit. Multivariable logistic regression models estimated the OR of OSA in WTC-exposed vs. non-WTC-exposed firefighters, controlling for known risk factors.

Results

Overall, 33% of the WTC-exposed cohort reported an OSA diagnosis compared with 21% of the non-WTC-exposed. WTC-exposed firefighters had elevated OSA odds (OR=1.31; 95%CI=1.17-1.46) after controlling for age, sex, race, smoking, alcohol use, BMI, and self-reported hypertension and diabetes. Other statistically significant risk factors were male sex (OR=2.14; 95%CI=1.35-3.40), BMI (OR=1.14; 95%CI=1.14-1.16), hypertension (OR=1.51; 95%CI=1.39-1.65), and diabetes (OR=1.64; 95%CI=1.46-1.85). All FDNY firefighters and >90% of non-FDNY firefighters reported a doctor visit ≤2 years prior to survey completion.

Conclusion

WTC exposure conferred an increased risk of OSA diagnoses, although we cannot rule out the possibility of detection bias because FDNY physicians have heightened awareness of OSA based on its association with other WTC-related respiratory conditions. All of these conditions may be manifestations of chronic systemic inflammation.

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