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Air pollution and current rhinitis in the Constances cohort

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ABSTRACT

The prevalence of rhinitis has increased in the past decades. We aim to study the association between exposure to air pollution and current rhinitis in Constances, a large French population-based adult cohort. Current rhinitis was defined at inclusion (2012-2018) by the presence of sneezing, runny or blocked nose in the last 12 months (questionnaire). Annual exposure to nitrogen dioxide (NO₂), particulate matter $\leq 2.5 \mu\text{m}$ (PM_{2.5}) and black carbon (BC) was estimated at the participants' residential address by European land-use regression models for 2010. Associations between annual exposure to air pollution and current rhinitis were estimated using a logistic model adjusted for age, gender, smoking, education level and French deprivation index. 131,366 participants were included (mean age: 47, 46% men). Prevalence of current rhinitis was 36%. Significant and positive associations were found between each pollutant and current rhinitis. Adjusted ORs were 1.12 [1.10-1.14] per 15 $\mu\text{g}\cdot\text{m}^{-3}$ increase in NO₂, 1.13 [1.11-1.16] per 5 $\mu\text{g}\cdot\text{m}^{-3}$ increase in PM_{2.5}, and 1.21 [1.18-1.24] per 10-5 $\cdot\text{m}^{-1}$ increase in BC. Results were similar for non-smokers or after stratifying by year of inclusion. Exposure to air pollution is associated with current rhinitis in adults in the general French population. Due to the high prevalence of rhinitis, our findings have an important public health impact, and support the need to reduce air pollution exposure.

KEYWORDS: -

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