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Short-term effect of ambient sulfur dioxide on cause-specific cardiovascular hospital admission in Beijing, China: A time series study**Endawoke Amsalu and Xiuhua Guo**

Capital Medical University, China

Evidence of the short-term effect of SO₂ on hospital admissions for cause-specific Cardiovascular Diseases (CVD) is still limited. This study aimed to examine the short-term associations between SO₂ and cause-specific CVD hospital admission in Beijing. A total of 460,938 hospitalizations for total CVD were obtained from electronic hospitalization summary reports from 2013 to 2017. A time series analysis was conducted to investigate the association between SO₂ exposure and hospitalizations for total and cause-specific CVD, including Coronary Heart Disease (CHD), Atrial Fibrillation (AF) and Heart Failure (HF). Stratified analysis was also conducted by age group (18-64 years and ≥65 years), sex and season. A generalized additive Quasi-Poisson model was used to examine the associations between SO₂ and cause-specific CVD after controlling for seasonality, day of the week, public holidays and weather conditions. We found an almost linear relationship between the exposure to SO₂ and cause-specific CVD admissions. A 10 µg/m³ increase in the two-day average concentration (lag0-1) of SO₂ was associated with an increase of 1.38% (95% CI: 0.99%; 1.77%) in hospital admission for total CVD, 1.58% (95% CI: 1.16%; 2%) for CHD and 1.69% (95% CI: 0.41%; 2.99%) for AF. Nevertheless, a statistically significant association was not observed for admissions for HF. The observed associations in the single-pollutant models were robust to the inclusion of pollutants in the two-pollutant model, but the estimate was attenuated when adjusting for fine particulate matter (PM_{2.5}). No difference in the association was observed for the effect modifiers of sex, season and age. A statistically significant association between hospitalizations and SO₂ was observed. The observed association between SO₂ and hospitalization might not be independent of fine particulate matter (PM_{2.5}) and further studies should be conducted to demonstrate the independent effect of SO₂.

Biography

Endawoke Amsalu has his expertise in environmental epidemiology focused on air pollution. He is currently pursuing his PhD in the Department of Epidemiology and Health Statistics. He focuses on non-communicable disease and also infectious disease.

indexmar@outlook.com