EMS Annual Meeting Abstracts
Vol. 15, EMS2018-573, 2018

Short-term effects of ambient air pollution on emergency room admissions due to cardiovascular causes in Beijing, China

Yuxia Ma, Sixu Yang, Jianding Zhou, and Zhiang Yu
Lanzhou University, Lanzhou, China (mayuxia07@lzu.edu.cn)

Ambient air pollution has been a major global public health issue. In recent years, a number of studies have demonstrated the association between ambient air pollution and cardiovascular diseases. A number of studies have shown various adverse effects of ambient air pollution on cardiovascular diseases. In the current study, we investigated the short-term effects of ambient air pollution (PM10, SO_2 and NO_2) on emergency room (ER) admissions due to cardiovascular causes in Beijing from 2009 to 2012 using a time-series analysis. Controlling the confounding factors on cardiovascular diseases such as long time trend, calendar effect and meteorological factors, a generalized additive model (GAM) was used to investigate the short term effects of air pollutants on daily cardiovascular admissions. A total of 82430 ER cardiovascular admissions were recorded. Different gender (male and female) and age groups (15yrs $\leq$ age <65 yrs and age $\geq$ 65 yrs) were also examined by single model and multiple-pollutant model. Three major pollutants (SO_2, NO_2 and PM10) had lag effects of 0-2 days on cardiovascular ER admissions. The relative risks (95% CI) of per 10μg/m3 increase in PM10, SO_2 and NO_2 were 1.008 (0.997$\sim$1.020), 1.008(0.999$\sim$1.018) and 1.014(1.003$\sim$1.024), respectively. The effect was more pronounced in age $\geq$ 65 and males in Beijing. We also found the stronger acute effects on the elderly and females at lag 0 than on the younger people and males at lag 2. The current study strengthens the evidence of effects of air pollution on health.
Keywords:air pollution; emergency room admissions; cardiovascular diseases; time-series