

Association between Daily Mean Air Temperature and Mortality of Respiratory Diseases in Beijing, China: a Case-Crossover Study

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Background and Aims: To explore the association between daily mean temperature and respiratory disease death (ICD10:J00-J99) in Beijing.

Methods: Data of daily death for the respiratory diseases (ICD: J00 -J99) in Haidian District in Beijing in Jan.1, 2004- Dec. 31, 2008 were collected from the local CDC. The corresponding meteorological and air pollution data were collected from the local EPB. The temperature-stratified case-crossover design and Logistic regression model were used for the data analysis. We considered lagged exposures, confounding by air pollution and other meteorological factors.

Results :After adjusting the influence of air pollutants (e.g. SO₂, NO₂, PM₁₀) and other meteorological factors (relative humidity, wind speed and atmospheric pressure), for 1°C increase in the daily mean air temperature, the corresponding increase of daily death for the respiratory diseases was 7.3% (OR=1.073, 95% CI: 1.002-1.149) within the range (15-25°C) and 25.7% (OR=1.257, 95%CI: 1.115-1.416) over 25°C respectively. No significant associations were observed statistically within the temperature below 15°C.

Conclusions: The increase of daily mean air temperature may be a risk factor for the daily respiratory disease death when the temperature is higher than 15°C, and the adverse effect of the temperature increase is greater over 25°C than the range 15-25°C.

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