

Heat wave effect on mortality in summer 2003 and 2006 in Prague

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Abstract

Background: During August 2003 and July 2006 there were observed records high temperature and high concentrations of pollutants across Europe. The effect of heat waves led to significant increases in total mortality, respiratory mortality and cardiovascular mortality. This study evaluates the association between exposure to heat waves and daily non-accidental mortality, respiratory mortality and cardiovascular mortality in Prague, Czech Republic.

Methods: The effect of heat wave in summer 2003 and 2006 on mortality was investigated using the negative binomial regression (type of the Poisson model). Counts of death were regressed on temperature, humidity, long-term trends, season, day of week and concentrations of pollutants (O₃ levels, PM₁₀ levels, NO₂ levels, SO₂ levels, CO levels). We used 1 day lag.

Results: We found association between heat waves in summers 2003 and 2006 and daily mortality and mortality on respiratory and cardiovascular diseases. No statistically significant association was detected. The effect of heat wave was more significant in women.

Conclusions: The effect of heat wave in August 2003 and July 2006 caused adverse effect on mortality in Prague, though lower as compared to many other cities in Europe.

Keywords: heat wave, mortality, temperature, ozone, particulate matter