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Comparison of effects of temperature extremes on cardiovascular mortality and morbidity in urban and rural populations

A. Urban (1,2), J. Kysely (1), H. Davidkovova (1), E. Plavcova (1), B. Kriz (3,4), J. Kyncl (3,4)

(1) Institute of Atmospheric Physics AS CR, Prague, Czech Republic , (2) Faculty of Science, Charles University, Prague, Czech Republic, (3) (5) Centre for Epidemiology and Microbiology, National Institute of Public Health, Prague, Czech Republic, (4) (6) Department of Epidemiology, Third Faculty of Medicine, Charles University, Prague, Czech Republic

There have been several studies on relationships of high and low air temperatures with excess cardiovascular mortality in the Czech Republic (central Europe). Much less has been understood about heat/cold-related cardiovascular morbidity in this region. The poster compares differences in the impacts of warm and cold days on excess mortality and hospitalizations for individual cardiovascular diseases (CVDs) in Prague and a selected rural region (south Bohemia) consisting of the Jihočeský kraj and Vysočina districts, over the period 1994–2009. Population size and age structure are similar in the two regions. These differences are compared between selected population groups (men and women; <65 and 65+ years). Values of the 90% (10%) percentile of daily mean air temperature in summer (winter) were used for the definition of warm (cold) days for each region separately. The excess mortality and morbidity were determined as differences from standardized daily counts of death and hospital admissions, adjusted for the epidemics of influenza/acute respiratory infections, and for annual and weekly cycles of mortality and hospitalizations.
Generally higher relative excess CVD mortality on warm days was identified in Prague, while for cold days we found higher excess mortality in south Bohemia. In contrast to mortality, weak excess CVD hospitalizations were observed for both warm and cold days. Significant ($p = 0.05$) excess hospitalizations were observed for chronic CVDs. Different responses of individual CVDs to heat/cold stress were observed, which are probably caused by the different nature of each CVD and different physiological processes induced by high/low ambient temperatures. The regional differences between Prague and south Bohemia indicate a possible influence of other factors, such as long-term and short-term exposure to air pollution, a different lifestyle, or a different population structure (e.g. in education or employment) in urban/rural regions.