EMS Annual Meeting Abstracts
Vol. 11, EMS2014-351, 2014
14th EMS / 10th ECAC

Contrasting patterns of hot spell effects on morbidity and mortality for cardiovascular diseases in the Czech Republic, 1994–2009

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The study examines effects of hot spells on cardiovascular disease (CVD) morbidity and mortality in the population of the Czech Republic, with an emphasis on differences between ischaemic heart disease (IHD) and cerebrovascular disease (CD) and between morbidity and mortality. Daily data on morbidity (hospital admissions) and mortality for CVD over 1994–2009 were obtained from national hospitalization and mortality registers and standardised to account for long-term changes and the seasonal and weekly cycles. Hot spells were defined as periods of at least two consecutive days with average daily air temperature anomalies above the 95% quantile, in June to August. Relative deviations of mortality and morbidity from the baseline were evaluated.

Hot spells were associated with excess mortality for all examined cardiovascular causes (CVD, IHD and CD). The increases were more pronounced for CD than IHD mortality in most population groups, mainly in males. In the younger population (0–64 years), however, significant excess mortality was observed for IHD while no excess mortality for CD. Excess CVD, IHD and CD mortality in hot spells was not accompanied by analogous increases in hospital admissions. This suggests that out-of-hospital deaths represent a major part of excess CVD mortality during heat, and for in-hospital excess deaths, CVD is a masked comorbid condition rather than the primary diagnosis responsible for hospitalization.