Commentary: Our next challenge in heatwave prevention

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The terrible health impact of the 2003 heatwave was a trauma for Europe. Since then, several European countries have massively invested in the preparation of warning systems and appropriate heatwave prevention plans. Most of these plans are targeted towards a reduction of the short-term mortality. Indeed, the study of the 2003 heatwave has shown that many people died before getting to the hospitals. Analysis of former heatwaves in England confirms the same pattern. In France, compared with the years 2000–02, 14,800 excess deaths (+60%) were observed from August 1 to August 20. Deaths directly related to heat, heatstroke, hyperthermia and dehydration increased massively (+3306 deaths), as well as undefined morbid states (+1741), cardiovascular (+3004), respiratory diseases (+1365) and nervous system diseases (+1001). The highest tribute was paid by the elderly people, age of above 75 years (+82%), but the excess mortality was observed from 35 years old. In-depth analysis of the hospital admissions is not available. In 2006, France experienced the first major heatwave since the implementation of its heat-prevention plan. About 2065 excess deaths occurred between July 11 and July 28. Following the hypothesis that heat-related mortality had not changed since 2003, 6452 excess deaths were predicted from the observed temperatures. In the same period, no increase of the total emergency admissions of 49 hospitals was observed. Only admissions of people above 75 years of old for heat-related pathologies (hyperthermia, dehydration, fainting and hypotension) significantly increased. The mortality lower than expected can be partially explained by a decrease in the population’s vulnerability and by the efficiency of the prevention plan. Although more feedback would be necessary, it seems that slowly the people are shifting to a better reaction towards acute heat. Can we conclude that the prevention of the short-term mortality is fulfilling its role and that the next challenge for European countries will be the identification of preventable heat-related morbidity? Indeed, a better understanding of the morbidity during heatwaves is needed. Clues may come from United States or Australia. In these countries, recent heatwaves were never as deadly as in Europe in 2003.
and hospital admissions seem to react more to heat than in Europe. In Adelaide, during heatwaves total hospital admissions increased by 7% [95% confidence interval (CI) −1% to 16%], with two interesting indicators: total mental health admissions (+7%; 95% CI 1–13%) and total renal admissions (+13%; 95% CI 3–25%), in all age groups (15–64 years, 65–74 years and >75 years). However, total mortality, disease- and age-specific mortality did not increase (apart from mental health-related mortality in people aged 65–74 years) and significant decreases were even observed in cardiovascular-related mortality. During the 1995 heatwave in Chicago, the excess mortality was relatively low; while, there was a significant increase in hospital admissions (11%), mainly (59%) for dehydration, heatstroke and heat exhaustion. Acute renal failure was also significantly elevated. Diabetes (30%) and renal diseases (52%) were frequently encountered as co-morbid conditions. These results are understandable: because they weaken the body, all chronic diseases increase the risk of severe illness or death-related mortality. Regular consumption of drugs can also aggravate the situation. Pre-existing renal or metabolic diseases have been identified as heat-mortality risk factors. With a focus on renal diseases, the paper of Hansen et al. provides additional information that patients affected by renal diseases should be more protected during heatwaves. They found a 10% increase in hospital admissions for renal disease during Australian heatwaves, and, although the elderly had a greater risk, the risk for acute renal failure was high in younger people, especially in males of 15–64 years (1.786; 95% CI 1.169–2.730). The vulnerability of this younger group is unexplained but opens a new range for targeting prevention groups. In Europe, several countries now have a real-time monitoring of hospital admissions. In France, classical heat-related diseases are monitored (heatstroke, dehydration and fainting). The system has the capacity to follow more indicators, and the identification of relevant diseases is needed. This would improve the efficiency of the warning system and of the prevention measures, focusing on vulnerable population groups, and appropriate training of health professionals. Following the example of Hansen et al., additional studies on the impact of the 2003 and 2006 heatwaves on morbidity and hospital admissions are needed in France, to assess the efficiency of the preventive measures implemented and to help identifying at risk people.

References