

Contrasting patterns of hospital admissions and mortality during heat waves: are deaths from circulatory disease a real excess or an artifact?

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In old subjects exposed to extreme high temperature during a heat wave, studies have consistently reported an excess of death from cardio- or cerebro-vascular disease. By contrast, dehydration, heat stroke, acute renal insufficiency, and respiratory disease were the main causes of hospital admission in the two studies carried out in elderly during short spells of hot weather. The excess of circulatory disease reported by mortality studies, but not by morbidity studies, could be explained by the hypothesis that deaths from circulatory disease occur rapidly in isolated people before they reach a hospital. Since the contrasting patterns of hospital admission and mortality during heat waves could also be due to chance (random variation over time and space in the spectrum of diseases induced by extreme heat), and bias (poor quality of diagnosis on death certificate and other artifacts), it should be confirmed by a concurrent study of mortality and morbidity. Many heat-related diseases may be preventable with adequate warning and an appropriate response to heat emergencies, but preventive efforts are complicated by the short time interval that may elapse between high temperatures and death. Therefore, prevention programs must be based around rapid identification of high-risk conditions and persons. The effectiveness of the intervention measures must be formally evaluated. If cardio- and cerebro-vascular diseases are rapidly fatal health outcomes with a short time interval between exposure to high temperature and death, deaths from circulatory disease might be a useful indicator in evaluating the effectiveness of a heat watch/warning system.

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