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Vitritis in two of the five cases and the hypothesis given the presence of widespread availability of the potent natural history of specific AIDS-related opportunistic infections such as CMV retinitis diagnosed after the first 2 months after the institution of HAART, but not in subsequent months.1-3 One would expect retinitis to occur in increasing rather than decreasing frequency after HAART-induced absolute CD4 count rises if these increases did not represent improved functional immunity. On the other hand, Mitchell and colleagues' hypothesis that functional CMV immunity takes several months to be restored and that of Carr and Cooper that improved CMV immunity may be anatomically restricted and not penetrate into the eye are equally plausible.

However, to put these speculations in perspective, we note that neither we nor any of your correspondents have any direct evidence proving that HAART does or does not allow reconstitution of clinically meaningful CMV-specific protective immunity in vivo. Searching for such direct evidence should now be a high priority objective of clinical research.

In response to specific questions raised, first, none of the patients described were receiving anti-CMV monoclonal antibody at the time that CMV retinitis was diagnosed. Second, routine ophthalmological monitoring began only after retinitis was diagnosed. Third, the nadir CD4 counts reported, ranging from 14 to 82 cells/μL, were obtained 1-17 weeks before HAART was initiated. And last, of the patients enrolled in ACTG protocol 266 between July 1995, and August 1996, four of 16 whose baseline absolute CD4 count was 50 cells/μL or greater had initiated ritonavir or saquinavir therapy before enrolment and three of these 16 had initiated protease inhibitor therapy greater than 8 weeks before enrolment.

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COLD EXPOSURE AND WINTER MORTALITY IN EUROPE

Sir—In the Eurowinter Group's (May 10, p 1341)1 report on cold-related mortality in warm and cold regions of Europe, the increase in mortality with given fall of temperature in regions with warmer winters are associated with cooler homes, less appropriate clothing, and decreased activity outdoors. However, as Amy Sperber and Simon Weitzman state in their commentary,1 the causal and temporal relation between observed risk factors (eg, living-room temperature) and cold-related mortality remains controversial and many questions remain to be elucidated. The mean percentage increase in mortality with each 1°C fall from 18°C was the lowest in Finland and highest in Athens; however, the striking differences in mortality with given fall of temperature between regions with virtually identical mean winter temperature (London 7°C and north Italy 7-7°C; 1-37 and 0-51% mortality increase, respectively, indicate a more complex relation.

A single recording of living-room temperature during the interview is not representative for the average indoor temperature during winter and does not reflect circadian fluctuations in ambient temperature. Were additional cold-protective measures during the night (eg, use of an electric blanket) or differences in insulation of housing units investigated? The observed differences in indoor heating conditions, clothing, and outdoor physical activity during cold exposure between residents of cold and warm regions can partly account for the lower mortality in the former group. On the basis of differences in shivering and sweating in the cold, more adequate acclimatisation to cold exposure probably contributed to the lower mortality in colder regions.

The Eurowinter Group analysed several risk factors for cold-related mortality, and emphasised the importance of adequate modulation of clothing and environmental conditions. Other relevant factors that affect the ability to withstand cold stress and its complications include adequate intake of (warm) food and drinks, subcutaneous fat content, nutritional state, musculature, extremes of age, physical fitness, cold awareness, underlying medical diseases, use of drugs and alcohol, as well as wind velocity and air humidity.4,5 Furthermore, both individual and clinical experience with cold-related disorders can greatly affect survival outcome.

Efficient thermoregulatory behaviour is pivotal to survival in cold regions and to reduction of cold-related morbidity.
and mortality, particularly in patients with impaired autonomic thermoregulation. Depending on environmental conditions and other risk factors, failure of autonomic or behavioural thermoregulation can cause fluctuations of core temperature or overt hypothermia or hyperthermia with potentially lethal consequences. Even small decreases in core temperature can induce striking changes in cardiovascular, (neuro)physiological, and immunological responses; hence, core temperature should be taken into account in the analysis of cold-related disorders. Since core temperature and mortality, particularly in patients with impaired autonomic failure. 3rd ed. Oxford: Oxford University Press, 1992:212-30.

1 The Eurowinter Groups. Cold exposure and winter mortality from ischemic heart disease, cerebrovascular disease, respiratory disease, and all causes in warm and cold regions of Europe. Lancet 1997; 349: 1341-46.


Sir—The Eurowinter Group’s report on cold exposure and winter mortality, presents important findings, but the investigators draw inferences beyond the limits of the data and study design. First, in an ecological study of this sort, individual risk factors are not related to individual outcomes; thus, causality cannot be proved. To demonstrate associations in an ecological study, it is essential that the populations used should be as similar as possible with respect to time and population characteristics. We assume that quota sampling was used to obtain the survey sample in this study, although the methods are not made explicit. This method is likely to have resulted in an unrepresentative population. For example, population groups unavailable at the time of survey, (eg, shift workers, and those without permanent residence) may not have been included. Such potential sources of bias have not been assessed in this study.

Second, the study is limited in its approach to the explanation of potential protective and risk factors for cold-related deaths. For example, it would have been helpful to take into account race, family history, diet, and other cultural factors. Genetic variation in both risk factors for cardiovascular disease and adaptation to cold may affect mortality outcomes. In addition, although the wearing of hats may be an important protective measure, it is likely that hat wearing is determined by other cultural factors as well as outdoor temperatures. This is an important research study that has highlighted significant associations between mortality and cold exposure, but the data and study design do not support conclusions about causality. The logical next step should be prospective studies of the relation between cold exposure and mortality. Such studies could also examine the effects of climate on morbidity, which may be equally important.

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The Eurowinter Group. Cold exposure and winter mortality from ischemic heart disease, cerebrovascular disease, respiratory disease, and all causes in warm and cold regions of Europe. Lancet 1997; 349: 1341-46.

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2 Martin White


Authors’ reply

Sir—Marius Mackenzie asks whether the large differences in winter mortality that we reported between different regions of western Europe were attributable to the concomitant differences that we reported in cold exposure. Our study did deal with the main alternative possibilities that he suggests. Variations in age structure were avoided.

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