VEUGELERS ET AL. REPLY

We thank Zwahlen et al. (1) for their valuable comments regarding differences in time from human immunodeficiency virus (HIV) seroconversion to acquired immunodeficiency syndrome (AIDS) and death as reported by us (2) and by Hessol et al. (3). Zwahlen et al. note that the shorter progression time as reported by us does not agree with estimates derived from other studies. However, most other progression studies have been conducted among serorelevant cohorts, which are less likely to include the "unseen sample" of rapid progressors and are possibly biased toward longer progression times (4).

Zwahlen et al. also raise five methodological points, which we address below.

With respect to Zwahlen et al.'s first point, sampling strategy, it should be noted that Hessol et al. selected men who were at risk for hepatitis B infection. Our subjects (of whom 75 percent were hepatitis B positive) were selected because they were HIV negative and at risk for HIV infection and AIDS. This marked selection difference may be related to different progression times to AIDS and death.

Regarding point two, the definition of time zero and length of window periods, we have shown that exclusion of the 20 percent of men with intervals >12 months did not change our estimates of progression time. However, a reanalysis of the data of Hessol et al. restricted to a <12 months window would be of interest.

With regard to length of follow-up (point three), we did censor a significant number of individuals after a short duration of follow-up. This is not because these men were lost to follow-up but because they seroconverted in more recent calendar times. As reported in our paper, 67 percent of our subjects seroconverted after 1984, 40 percent after 1985 and 25 percent after 1986. The duration of follow-up in the study of Hessol et al. is naturally longer because most of their seroconversions occurred between 1979 and 1984 (5).

With respect to point four, outcome ascertainment, we believe that assessment of AIDS and death in our cohorts is excellent. All subjects were actively followed up, cross-checked against local and national AIDS and death registries, and loss to follow-up was minimal.

Censoring strategy (point five) may not only affect estimates of progression time, but also the magnitude of risk estimates of determinants of disease progression. Our primary goal was to study such determinants, and therefore we evaluated the effect of censoring strategy on these factors. Because censoring at the date of analysis did not change the magnitude of our risk estimates (including the statistically nonsignificant reduced risk for developing AIDS among those seroconverting before 1984), we used date of the last AIDS-free or last-seen-alive visit as our right censoring date. Censoring subjects at the date of analysis dictates that they remained AIDS-free and did not die before that time. To avoid bias toward longer progression time due to reporting delay or incompleteness of registries, we decided not to do so. However, reanalyzing our data while censoring at the date of analysis showed our estimates of median time from seroconversion to AIDS to increase from 8.3 to 9.2 years and from seroconversion to death from 8.9 to 10.6 years. Although these estimates are longer, they are still substantially shorter than the 10.2 years to AIDS and the 12.3 years to death as reported by Hessol et al.

In conclusion, we feel that none of Zwahlen et al.'s comments raise any serious doubts about our results, and we infer that differences in progression time between our study and the study of Hessol et al. are not likely the result of the use of different methodologies alone.

REFERENCES

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