Response to Referral of Women to Ambulatory Blood Pressure Monitoring

We thank Drs Ben-Dov and Bursztyn for their insightful comments on our work. In their study of 3975 patients, they noticed that women (53.4%) and men experienced similar mortality rates, amounting to 11.2 and 10.8 deaths per thousand patient-years, respectively. Because women were on average 6 years older than men, Ben-Dov and Bursztyn explained the similarity in the mortality rates by referral bias in women, who, compared with men, had lower ambulatory blood pressure, a greater white-coat effect, and were treated more frequently (62% versus 53%). Unfortunately, the article by Ben-Dov and Bursztyn did not report sex-specific hazard ratios (HRs) for a given increase in blood pressure. Because in Ben-Dov’s study women had the same death rate as men but at a lower ambulatory blood pressure, we suspect that, in line with our observations in 11 randomly recruited population samples, the relative risk of death also increased steeper with blood pressure in women than men.

In a previous report on the same single-center cohort, Ben-Dov et al noticed that a nondipping heart rate was associated with an increased risk of death, even when adjusted for the nocturnal fall in systolic pressure. Ben-Dov et al suggested that identifying a nondipping heart rate might add to the clinical relevance of ambulatory heart rate monitoring in women. Our colleagues requested to know our findings. The night-to-day heart rate was slightly but significantly lower in women than men (0.8185 versus 0.8251; P=0.0018). As already reported nearly 3 years ago, 24-hour heart rate predicted total (HR, 1.15) and noncardiovascular (HR, 1.18) mortality but not cardiovascular mortality (HR, 1.11) or any of the fatal combined with nonfatal events (HRs, ≤1.02). The daytime heart rate did not predict mortality (HRs, ≤1.11) or any fatal combined with nonfatal event (HRs, ≤0.96). Nighttime heart rate predicted all of the mortality outcomes (HRs, ≥1.15) but none of the fatal combined with nonfatal events (HRs, ≥1.11). The night-to-day heart rate ratio predicted total (HR, 1.14) and noncardiovascular mortality (HR, 1.12) and all of the fatal combined with nonfatal events (HRs, ≥1.15) with the exception of stroke (HR, 1.06). Overall, ambulatory heart rate added little to the prediction of cardiovascular risk. Although we observed an increasing proportion of women across the quartiles of heart rate, in the sensitivity analysis, only men showed a higher risk, with increasing 24-hour and nighttime heart rate and increasing night-to-day heart rate ratio.

In conclusion, we agree that ambulatory blood pressure monitoring should be implemented on a much wider scale, albeit not only in women but in men as well. This technique is currently the only noninvasive way to assess blood pressure and heart rate during sleep. However, in our experience, it is the 24-hour and nighttime systolic blood pressures that matter. Other characteristics of the diurnal profile, such as beat-to-beat variability, the morning surge in blood pressure, the 24-hour heart rate, or the night-to-day ratio of heart rate, contribute little to the prediction of outcome.

Disclosures

None.

References


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Disclosures

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