Disorders of Orthostatic Blood Pressure Responses in Hypertensive Individuals: Prognostic Implications for Cardiovascular Disease?

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Most research based on elderly, frail populations on disorders in the blood pressure response to postural change has focused on orthostatic hypotension (OH), where OH is accompanied by dizziness and syncope and associated with falls, fractures, and potential serious morbidity. More recently, in large, middle-aged cohorts, OH has been associated with incident coronary disease and stroke, leading to interest in the prognostic implications of OH in ostensibly healthy populations. In contrast, the association of orthostatic hypertension (OHT) with cardiovascular disease has not been well studied.

In this issue of the Journal, Fan and colleagues report on the association of both OH and OHT with cardiovascular and kidney disease in a sample of middle-aged and older residents of rural China. The study population consisted of mostly hypertensive individuals, more than 75% of whom were not using medications to control their blood pressure. Consistent with earlier reports, both OH and OHT were more prevalent in hypertensive than normotensive individuals. Further, in contrast to reports based primarily on symptomatic patients in clinical settings, the prevalence of OH was not significantly higher among hypertensive individuals using different classes of antihypertensive medications (diuretics, angiotensin-converting enzyme inhibitors, calcium channel blockers) compared to those not treated. As resting systolic blood pressure (SBP) and diastolic blood pressure (DBP) levels were higher among treated than untreated hypertensive individuals, associations could have been confounded by hypertension severity. However, community volunteers are likely to be better adjusted to their medications than patients in clinical settings seeking care for OH-related symptoms; thus, the current findings, as well as other reports of no increased occurrence of OH in treated hypertensive individuals (e.g., ref. 1), may reflect differences in the characteristics of community and clinical study participants.

Most findings presented by Fan and colleagues were limited to hypertensive participants and focused on the association of OH and OHT with coronary artery disease, stroke, decreased kidney function, left ventricular hypertrophy, and peripheral artery disease. In multivariable-adjusted analyses, OH was more consistently associated with the cardiovascular disease outcomes than was OHT and neither condition was associated with impaired kidney function. A major limitation of this study was its cross-sectional design which, as the authors acknowledged, precludes inferences as to whether OH or OHT responses preceded or were sequelae of the conditions studied. Therefore, the findings cannot elucidate etiologic processes that may link OH or OHT with cardiovascular conditions. Further, the main analyses were limited to hypertensive individuals, who, on average, had SBP or DBP levels that classified them with grade 2 (untreated) or grade 3 (treated) disease. This limits the generalizability of the findings and the study’s ability to address issues related to the potential prognostic significance of OH and OHT in broader populations. Nonetheless, the findings of an increased prevalence of stroke and peripheral artery disease among those with OHT are relatively novel and worthy of follow-up in a prospective study, preferably not limited to hypertensive individuals.

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References: