Renal Resistive Index and Cardiovascular and Renal Outcomes in Essential Hypertension

To the Editor:

In the September issue of Hypertension, Doi et al.1 analyzed the prognostic implications of elevated ultrasound renal resistive indices (RRI) in hypertensive subjects without overt cardiovascular disease. In line with earlier studies among patients with chronic kidney disease and among kidney allograft recipients, elevated RRI were found to predict adverse outcome.1

Doi et al.1 should be commended for their efforts to better characterize implications of renal ultrasound measurements. Nonetheless, some words of caution should be raised.

First, we feel that the authors selected an uncommon end point for their longitudinal analysis, which comprises a heterogeneous spectrum of renal, atherosclerotic, and cardiac events. Given the high prevalence of chronic kidney disease patients among the study participants and the low number of atherosclerotic events, the study results are predominantly driven by the onset of end-stage renal disease (~20% of outcomes), heart failure, and death.

Second, when reanalyzing their study cohort data for a companion article published in the American Journal of Hypertension cohort,2 RRI were found to be more strongly associated with pulse pressure than with systolic and diastolic blood pressure, which is in line with earlier studies3,4 and pathophysiological models.5 For underscoring the idea of an independent prognostic implication of RRI, the authors therefore should have adjusted their prospective data for pulse pressure rather than for systolic blood pressure values, as done in the present article. Age adjustment of all analyses would have been an alternative approach.

In the same regard, the authors concede that RRI have been characterized as markers of systemic atherosclerotic vessel damage rather than as specific markers of renal damage.1 Thus, we caution against the idea that RRI allow to assess impaired renal hemodynamics, as suggested in the abstract.

Finally, the authors suggested that their findings require confirmation by other large population-based studies. Notably, results from our ongoing HOM SWEET HOMe (Heterogeneity of monocytes in subjects who undergo elective coronary angiography—The Homburg evaluation) study on the implications of high RRI on atherosclerotic events among patients at elevated cardiovascular risk without overt chronic kidney disease will be available in late 2013.

Disclosures

None.

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