Response to Letter by Hadjiev and Mineva

Response:

We thank Drs Hadjiev and Mineva for their comments on our article investigating the relationship between intima media thickness (IMT) and regional cerebral blood flow (rCBF) in older adults. This study evaluated nondemented participants in the Baltimore Longitudinal Study of Aging who underwent annual neuropsychological testing, neurological examination, interval medical history, and medication review.1-3

Changes in IMT have been associated with multiple cardiovascular risk factors and medications.5,6 Twenty-eight of 73 participants in our study were on antihypertensive medications at the time of study (13 on calcium channel blockers, 7 on ß-blockers, 9 on angiotensin-converting enzyme inhibitors, 3 on peripheral vasodilators; 4 on 2 classes of antihypertensives). Although sample sizes in each group were small, mean IMT was similar across antihypertensive medication groups, and IMT was not significantly different between participants medicated for hypertension and those not on antihypertensive medications in these relatively small samples of older adults without clinical evidence of cerebrovascular disease.

Neuropsychological performance was measured using a battery of tests that included the Blessed Information–Memory–Concentration test, Mini-Mental State Examination, Immediate and Delayed Free Recall, Boston Naming Test, Controlled Verbal Fluency, Trail Making Tests A and B, Clock Drawing, and other constructions. Based on the clinical history and neuropsychological performance, cognitive status was determined by consensus conference (detailed in Kawas et al3). Participants with cognitive impairment or dementia at the time of study (13 on calcium channel blockers, 7 on ß-blockers, 9 on angiotensin-converting enzyme inhibitors, 3 on peripheral vasodilators; 4 on 2 classes of antihypertensives). Although both hypertension and age are associated with IMT,7 given the well-controlled blood pressure in this sample, we focused on the evaluation of the effects of mean arterial pressure rather than hypertension. Using this approach, we found that the relationship between carotid IMT and rCBF is not greatly affected by mean arterial pressure suggesting that in older adults with well-controlled blood pressure, levels of distending blood pressure do not significantly influence the relationship between IMT and rCBF. We also adjusted all analyses for the participant’s age in view of the known age differences in IMT4 and rCBF.8

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The purpose of this study was to investigate the relationship of IMT and rCBF in those without clinical cerebrovascular disease. We excluded older adults with significant vascular disease, which likely contributed to the overall lower vascular burden observed in this closely monitored community-based sample of nondemented older adults. Although this sample is not representative of the general population, rates of cognitive impairment3 and brain changes8 are similar to other samples. Our investigation provides the first detailed evidence of the IMT and rCBF relationship in individuals without clinical cerebrovascular disease. As such, it provides a basis for further studies investigating the neural correlates of subclinical vascular disease.

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Disclosures

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