Questions Regarding the Aortic Measurements of Mitchell et al

To the Editor:

Mitchell et al.1 conclude that reduced proximal aortic diameters, in addition to wall stiffness, account for the increase in pulse pressure associated with systolic hypertension. This observation is surprising in view of the strong relations of aging to both systolic hypertension and progressive aortic dilatation. In their study, aortic diameter represented the "proximal aortic root" measured from 2D long-axis images. The average aortic root diameters reported in their Table 2 (3.13 ±0.28 cm in individuals with pulse pressure ≤75 mm Hg and 2.94 ±0.36 cm in individuals with pulse pressure >75 mm Hg) are surprisingly small given an average age of >60 years for the entire population and average body mass indices in the high-overweight to obese range. This may reflect measurement of aortic diameters just distal to the anulus but not at the maximum diameter of the sinuses of Valsalva, as specified in standard nomograms widely used to identify normal aortic diameters in relation to body surface.2 Thus, the authors should more precisely describe the location of their measurements. Of even greater pathophysiologic importance, hypertension-associated increases in aortic diameters measured from 2D echocardiographic images occur at the level of the supra-aortic ridge and in the proximal ascending aorta.3 Because reported dimensions appear to have been measured in the portion of the aorta that does not dilate in response to hypertension, the study conclusions should perhaps be tempered by the understanding that measurement at a slightly higher level in the proximal aorta might have altered the study findings by identifying an area where volume capacitance was greater, not less, in patients with higher pulse pressures.

Disclosures

None.

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