Response to Letter Regarding Article, “Prediction of Progression of Coronary Artery Disease and Clinical Outcomes Using Vascular Profiling of Endothelial Shear Stress and Arterial Plaque Characteristics: The PREDICTION Study”

We agree entirely with Dr Kaneda that both the local endothelial shear stress (ESS) stimulus and the local atherosclerotic plaque change may occur in a highly focal manner within each 3-mm segment, and one must look at both ESS and the arterial wall in portions of the wall circumference to assess plaque behavior accurately. In our original article,1 we were limited by space to describe the effect of focal ESS on focal plaque progression around the circumference of the 3-mm segment, but we presented those results from a database study at the American Heart Association Scientific Sessions in 2012.2 Focal eccentric plaque growth in a portion of the circumference of the arterial wall is indeed strongly related to the level of low focal ESS in that same portion of the artery wall at baseline.

Dr Kaneda also correctly notes that average plaque area decreased regardless of ESS category, although plaque area appeared to decrease less in the proatherogenic low-ESS segments than in the moderate- or high-ESS segments (not significantly so). Although thrombi may have been present in nonculprit plaques and their dissolution may have been responsible for the apparent plaque area decrease, such an explanation seems unlikely. It would be very unusual for thrombus to be so widespread that most nonculprit plaques would exhibit such thrombi and that these diffuse thrombi would dissolve over time. In addition, nonculprit thrombus may well be present at both the baseline and follow-up studies, and if so, one would not expect a major change in thrombus from baseline to follow-up. Optical coherence tomography would certainly detect thrombus better than intravascular ultrasound, but optical coherence tomography was not available in the Prediction of Progression of Coronary Artery Disease and Clinical Outcome Using Vascular Profiling of Shear Stress and Wall Morphology (PREDICTION) study. Although thrombus dissolution in some nonculprit plaques may have partially contributed to the decrease in apparent plaque area, it seems more likely that initiation of statin therapy in these statin-naive patients would have been responsible for true plaque regression.3

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Disclosures
None.

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