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 thrombus 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

Sources of Funding
This investigator-initiated trial was supported by Boston Scientific Co. The investigators had sole direct access to the primary data and performed all data analyses. We acknowledge the support of the George D. Behrakis Fellowship and the Hellenic Heart Foundation.

Disclosures
None.

Yasuhiro Makita, MD
Hakodate Municipal Hospital
Hokkaido, Japan
Shigeru Nakamura, MD
Kyoto Katsura Hospital
Kyoto, Japan
Tomohiro Kawasaki, MD
Shin Koga Hospital
Fukuoka, Japan
Akihiko Takahashi, MD
Sakurakai Takahashi Hospital
Hyogo, Japan
Takaaki Katsuki, MD
Jichi Medical University Hospital
Tochigi-ken, Japan
Sunao Nakamura, MD
New Tokyo Hospital
Tokyo, Japan
Atsuo Namiki, MD
Kanto Rosai Hospital
Kawasaki, Kanagawa, Japan
Atsushi Hirohata, MD
Sakakibara Heart Institute of Okayama
Okayama, Japan
Toshiyuki Matsumura, MD
Kumamoto Rosai Hospital
Yatsushiro, Japan
Seiji Yamazaki, MD
Sapporo Higashi Tokushukai Hospital
Sapporo, Japan
Hiroyoshi Yokoi, MD
Kokura Memorial Hospital
Kitakyusyu, Japan
Shinji Tanaka, MD
Shonan Atsugi Hospital
Kanagawa, Japan
Satoru Otsuji, MD
Higashi Takarazuka Satoh Hospital
Hyogo, Japan
Fuminobu Yoshimachi, MD
Aomori Prefectural Central Hospital
Akita, Japan
Junko Honye, MD
Shonan Kamakura General Hospital
Kanagawa, Japan
Dawn Harwood, PhD
REGISTRAR-MAPI
Lexington, KY
Martha Reitman, MD
Brigham & Women’s Hospital
Harvard Medical School
Boston, MA
Ahmet U. Coskun, PhD
Northeastern University
Boston, MA

(Circulation. 2013;127:e489-e490.)
© 2013 American Heart Association, Inc.
Circulation is available at http://circ.ahajournals.org

DOI: 10.1161/CIRCULATIONAHA.112.147561
References


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"


Circulation. 2013;127:e489-e490
doi: 10.1161/CIRCULATIONAHA.112.147561

Circulation is published by the American Heart Association, 7272 Greenville Avenue, Dallas, TX 75231
Copyright © 2013 American Heart Association, Inc. All rights reserved.
Print ISSN: 0009-7322. Online ISSN: 1524-4539

The online version of this article, along with updated information and services, is located on the World Wide Web at:
http://circ.ahajournals.org/content/127/10/e489

Permissions: Requests for permissions to reproduce figures, tables, or portions of articles originally published in Circulation can be obtained via RightsLink, a service of the Copyright Clearance Center, not the Editorial Office. Once the online version of the published article for which permission is being requested is located, click Request Permissions in the middle column of the Web page under Services. Further information about this process is available in the Permissions and Rights Question and Answer document.

Reprints: Information about reprints can be found online at:
http://www.lww.com/reprints

Subscriptions: Information about subscribing to Circulation is online at:
http://circ.ahajournals.org/subscriptions/