Response by Madder et al to Letter Regarding Article, "Multimodality Intracoronary Imaging With Near-Infrared Spectroscopy and Intravascular Ultrasound in Asymptomatic Individuals With High Calcium Scores"

In Response:

We agree with Drs Shaikh and Budoff on the necessity of additional studies to investigate whether detection of lipid-rich plaque (LRP) by near-infrared spectroscopy (NIRS) can add incremental value to the coronary artery calcium score (CACS) in the prediction of future cardiovascular events. In our recent study, we demonstrated that NIRS adds information on the presence or absence of LRP among individuals with a high CACS.[1] A logical next step is to determine if LRP detection by NIRS adds prognostic value to the prediction of events using CACS. It is notable that among symptomatic individuals with coronary artery disease, there is emerging evidence that knowledge of coronary lipid content provided by NIRS identifies patients at highest risk of suffering future cardiovascular events.[2–4] Whether similar risk stratification can be provided in a staged manner by the performance of NIRS among asymptomatic individuals with a high CACS requires further study.

Whereas the CACS can be determined noninvasively and, therefore, has great potential for screening, intracoronary NIRS is invasive and performed at the time of coronary angiography. If future studies support the ability of NIRS to provide independent predictive value beyond the CACS, the 2 procedures could be used in a sequential fashion: initial screening of asymptomatic individuals by calcification scoring, with intracoronary NIRS assessment for LRP reserved for those with a high-risk CACS.

Finally, the data emerging from calcification and LRP detection continue to support the model of atherosclerotic plaque progression. Inflammation and lipid accumulation lead to early calcification detected by an increase in calcification volume. As plaques progress, they become more intensely calcified, the lipid content decreases, and they become less dangerous. Further exploration of this hypothesis and improvement of the means to image its various stages offers hope for more effective prevention of coronary events.

Disclosures

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