

Clinical significance of extra-coronary arterial calcifications

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Coronary artery calcium scoring has become an important test in the evaluation of patients with suspected coronary artery disease (CAD). Other than providing a quick assessment of the extent of atherosclerosis, it has been shown to be an important predictor of future cardiovascular events by itself and in addition to other traditional risk factors of CAD.^{1,2} In this issue of the journal,³ Allam et al. studied 154 middle eastern men with normal myocardial perfusion imaging (MPI) with a coronary and a whole body calcium score. They found that 75% of the patients had atherosclerosis. More interestingly, 53% of patients with a coronary artery calcium score (CACS) of zero had extra-coronary calcifications. Two important questions arise: (1) How generalizable is this observation to the general population? and (2) More importantly, how can this be utilized in daily clinical practice?

The sample size of the study was relatively small and all patients were referred for MPI for some reason. So it is important to underscore that these findings cannot be extrapolated to the general population of asymptomatic people even though the MPI was normal. Nevertheless, the findings of this study are consistent with those of the much larger PESA study⁴ in which 63% of a middle-aged cohort had evidence of atherosclerosis and 60% of those with a CACS of zero had extra-coronary calcifications. In PESA as well as in this study, the most common site of calcifications was in the ileo-femoral area. The PESA study also found that 58% of patients with low cardiac risk scores (10-

year Framingham score, or European SCORE) have atherosclerotic disease with around one-third having more than 2 sites involved. Allam's findings are also consistent with the large AWHS study⁵ that evaluated the association of subclinical carotid and femoral atherosclerosis with risk factors and CACS in middle-aged men. There also, 72% of patients were found to have subclinical atherosclerosis most commonly in the femoral arteries (54%). In spite of the small sample size, the different ethnic background, and the selection bias in patients studied, the findings in the current study are consistent with much larger similar studies done in asymptomatic people.

The next and more important question is how these findings can be utilized in the daily clinical practice of physicians. For the practicing physician important diagnostic findings are those that impact management which in turn might impact outcomes. The primary treatment of atherosclerosis (whether coronary or extra coronary) has been with antiplatelet therapy and statins. This therapy has been applied based on the clinical status of the patients and the cardiovascular risk defined by the traditional CAD risk factors. Could the finding of extra-coronary calcifications assist or adjust the management of these patients? Very large studies will be needed to answer this question. But we have to realize that even if assessment of extra-coronary calcifications would be found to be useful, it will come with a price of extra radiation to patients and the psychological burden of having sometimes to deal with incidental findings that might not be clinically relevant.

Disclosures

The authors have nothing to disclose.

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