Valvular Calcification and Atherosclerosis

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We have read the article published by Takeda et al. 1 Briefly, they analyzed vascular (coronary artery, thoracic ascending aorta) and valvular (aortic and mitral valve) calcification by multi-detector spiral computed tomography. Ultimately, they found that calcification at the sites of the ascending thoracic aorta and coronary artery is related to significant coronary stenosis $>50\%$.

Although they reported a close association between coronary artery stenosis and thoracic aortic calcification, the absence of any association between valvular calcification and coronary stenosis caught our attention. The association between thoracic aortic calcification and coronary artery calcification reflecting underlying atherosclerosis is well documented in the literature 2; however, the underlying mechanism of valvular calcification is still under debate. Although they have common cardiovascular risk factors, aortic valve calcification is an active process involving osteoblast-like differentiation and extracellular matrix remodeling (reviewed by Yetkin and Waltenberger). Recently, it has been reported that the rate of significant coronary artery stenosis $>50\%$ in patients with aortic valve calcification and mitral annular calcification is comparable to that without valvular calcification 4, 5. We agree with the authors that traditional risk factors should be strictly managed in patients with thoracic and valvular calcification. On the other hand, we believe that the mechanism of aortic valve calcification may differ from atherosclerosis. Although there are similarities in the risk factors and the process of atherogenesis, not all patients with coronary artery disease or atherosclerosis have calcific aortic stenosis.

In this respect, the absence of an association between significant coronary artery stenosis and valvular calcification presented by Takeda et al. 1 will encourage further studies to elucidate the controversy of the association of valvular calcification with atherosclerosis.

References


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