Letter to the Editor

Association between Aortic Valve Sclerosis and Adverse Cardiovascular Events

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Dear Editor

The presence of aortic valve sclerosis (AVS) is associated with adverse cardiovascular events even when pre-existing risk factors are considered. In the Cardiovascular Health Study, which included more than 5,000 patients who were ≥ 65 years of age and were periodically evaluated for more than five years, AVS was associated with a 40% increase in the risk of myocardial infarction; in patients who did not initially present with heart disease, there were a trend toward an increased risk of angina, heart failure, and stroke. It is still unclear whether the mechanism of association between AVS and adverse clinical cardiovascular events is caused by diffuse atherosclerosis, endothelial dysfunction, altered calcium metabolism, lipid accumulation, genetic polymorphism, or other as yet undefined factors[1].

AVS is defined as thickening and increased echogenicity in the aortic leaflets with no reduction in mobility on an echocardiograph[2]. The early lesion of AVS is an active process with some similarities to atherosclerosis, including the histopathological features and an association with risk for coronary artery disease. Patients are at greater risk for coronary artery disease if they are older, male, hypertensive, smokers, diabetics, or if their HDL and LDL levels are high[1]. A cross-sectional study by Marmelo et al.[2] evaluated 2,494 individuals who presented with AVS diagnosed via transthoracic Doppler echocardiography. These individuals also had a greater prevalence of hypertension, previous myocardial infarction, diabetes, a history of smoking, left ventricular systolic dysfunction, and mitral valve sclerosis. Multivariate analysis allows for a more complete study of the association between each variable and its outcome.

Keywords

Heart Valve Diseases/physiopathology; Coronary Artery Disease; Cardiovascular Risk Factors; Doppler Echocardiography.

References

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Reply

As established in international guidelines, aortic valve sclerosis (AVS) is defined as an increased thickness and hardening of the aortic leaflets with no commissural fusion[1].

One of the pioneers in the study of aortic sclerosis was Catherine Otto, who conducted several studies on this topic and verified the association between AVS and various adverse cardiovascular events. Her studies are still used as reference in current research regarding the association between AVS and coronary artery disease (CAD)[2].

Though the mechanism that verifies the association between AVS and the development of CAD is not completely clear, most single- and multi-center international studies support the existence of this association, warn of the dangers of this association, and encourage frequent follow-up once the diagnosis is made. In the study by Conte et al.[3], AVS echocardiograms of patients who reported chest pain were used to predict obstructive coronary disease. This method achieved a sensitivity of 38% and a specificity of 86%; the stress echocardiogram has a sensitivity of 67% and a specificity of 72% for the diagnosis of coronary heart disease. Thus, Conte et al. proved that the mere presence of AVS can be a marker for cardiovascular risk.

A cross-sectional study by Marmelo et al.[1], which included 2,493 individuals, compared AVS patients and non-AVS patients and verified a significant increase in the association between AVS and hypertension, diabetes, history of smoking, heart failure, left ventricular dysfunction, and acute myocardial infarction. Because this was a cross-sectional study in which the multivariate analysis did not produce significant results, the authors suggested future longitudinal studies with multivariate analyses. This way, greater statistical validation of the association between the variables can be achieved.

Sincerely,

Felipe C. Marmelo

References

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