



Low Concordance Between Left Atrium Diameter and Volume in Patients with Higher Risk of Atrial Fibrillation

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Descriptors: Left Atrial Function, Cardiac Volume, Diastole, Echocardiography, Doppler

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In the Low Concordance Between Left Atrium Diameter and Volume in Patients with Higher Risk of Atrial Fibrillation study, the authors showed this low concordance is worth being studied as we know size and atrial remodeling contribute to a high incidence of atrial fibrillation.

In the primary analysis, the correlation between left atrium diameter and left atrium indexed volume was reasonable both in patients showing signs of higher ventricle filling pressure ($E/E' \text{ ratio} > 15$), which were the minority of patients (only 33 out of 501 effectively studied), and in patients with $E/E' \text{ ratio} < 15$.

There was discordance between left atrium measurements and volumes in the $E/E' \text{ ratio} > 15$ group, that is, in those patients with increased left ventricle filling pressure, when compared to the $E/E' \text{ ratio} < 15$ group. The first group was older, had higher incidence of blood pressure, diabetes mellitus, coronary artery disease, and heart failure, in addition to lower left ventricle ejection fraction. These data also involve the population with higher risk of developing atrial fibrillation. AF prevalence in the general population is known to be of 0.4 to 1%, increasing substantially with age.

Supporting evidences came from innumerable studies, including from the Tsang et al.¹ study that showed

a strong association between indexed atrial volume, degree of diastolic dysfunction of the left ventricle, and risk of developing atrial fibrillation; and from studies involving tridimensional echocardiography, which showed superiority of the atrial volumetric analysis over the simple measurement of this chamber. On the other side, other studies showed that the combination of left atrium volumes with the functional assessment of this chamber as a pump generates more accurate data when assessing patients with greater risk of developing atrial fibrillation. This suggests these two analyses are combined together. Investigating ventricle filling pressures (as done in this study) is also interesting and part of this context, but we need a larger number of patients showing high intracavity pressures for a more accurate comparison.

References

1. Tsang TS, Barnes ME, Gersh BJ, Bailey KR, Seward JB. Left atrial volume as a morphophysiological expression of left ventricular diastolic dysfunction and relation to cardiovascular risk burden. *Am J Cardiol.* 2002;**90**(12):1284-9.

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