

Comparative analysis between cardiac magnetic resonance imaging and echocardiography among patients with atrial fibrillation

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Background: Patients with atrial fibrillation (AFib) were previously excluded from left ventricular hypertrophy criteria studies. At that time, echocardiography (ECHO) was considered the golden standard method for cardiac morphology and function evaluation. However, as an intrinsic method limitation, there was a clear inter and intra-observer variation. After magnetic resonance imaging (MRI), such results variations have dramatically dropped.

Objectives: This study aimed to compare cardiac morphologic data from AFib patients submitted to both ECHO and MRI.

Methodology: 18 AFib patients were selected. ECHO-MRI delay was lesser than 1 year. Cardiac data analyzed were: left atrium (LA), left ventricle systolic diameter (LVSD), left ventricle diastolic diameter (LVDD), left ventricle systolic volume (LVSV), left ventricle diastolic volume (LVDV), septum diameter; posterior (ECHO)/lateral (MRI) wall diameter, left ventricular mass, left ventricular ejection fraction (LVEF). Categorical data were expressed as percentage and continuous variables were expressed as mean (\pm SD) and statistical analyses used were Fisher Exact Test and paired T Test, respectively. Pearson Test was used to evaluate methods correlation. Significant p value: $\leq 0,05$.

Results: Male: 13 (72%); mean age: 56 ± 17 years-old; paroxysmal AFib: 3 (17%); permanent AFib: 6 (33%); persistent AFib: 9 (50%); ECHO-MRI delay: 80 ± 97 days; cardiac parameters analyzed presented no statistical difference between methods. Significant correlation was demonstrated between ECHO and MRI related to: LA, LVSD, LVDD, septum, LVSV, LVDV and LVEF. There was a tendency of correlation with posterior wall evaluation. Left ventricular mass did not show correlation between methods.

Conclusion: In that study it was demonstrated that is possible to use the results from both ECHO as well as from MRI (except posterior wall and left ventricular mass), because they were quite similar.

Keywords: Atrial fibrillation; Cardiac morphologic; Echocardiography; Magnetic resonance imaging.