

Comparison of LV Mass as Derived by Echocardiography and Cardiac CT as a Function of Age

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Background:

Increased LV mass as measured on echocardiography (ECHO) is an independent risk factor for cardiovascular morbidity and mortality. Increased LV mass is frequently reported in elderly patients on ECHO studies, but MRI and autopsy studies have noted that LV mass is unchanged with age. The objective of this study was to evaluate the correlation between LV mass measurement on echocardiographic and CT studies as a function of age, to further elucidate this discrepancy.

Methods:

Subjects who underwent both cardiac CT and echocardiography within 6 months were identified. Echocardiographic measurements were performed in accordance with ASE guidelines. LV mass was calculated on CT using the Philips Intellispace Portal Comprehensive Cardiac Package.

Results:

78 subjects, 39 under 65 years of age, and 39 over 65 were identified. LV mass averaged 165.2gm on CT and 179.5gm on ECHO ($p=0.1008$) with correlation: $R=0.6913$, $p<0.0001$. LV mass in patients under 65 averaged 170.9gm on CT and 160.1gm on ECHO ($p=0.34$, on correlation $R=0.8418$, $p<0.0001$) and in patients over 65 averaged 159.1gm on CT and 199.9gm on ECHO ($p=0.0013$, on correlation $R=0.7385$, $p<0.0001$). When ECHO calculations of LV mass were made from the mid rather than the proximal septum, the difference between ECHO and CT derived masses became insignificant: whole group ECHO LV mass = 160.23 gm (compared with CT, $p=0.5606$), while in patients under 65 LV mass was 155.64 gm (compared to CT $p=0.1877$) and in patients over 65 LV mass was 165.2 gm (compared to CT $p=0.6076$).

Conclusions:

LV mass in older patients is consistently overestimated by ECHO when compared to CT, possibly due to increased proximal septal wall thickness in older patients. Standard measurement of LV mass by ECHO in subjects over the age of 65 should include measurements performed at the level of the mid-septum only. The prognostic significance of increased LV mass assessed by ECHO in elderly patients may reflect cardiac remodeling rather than a true increase in LV mass.