Poster Session

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Usefulness of the subendocardial and subepychardial longitudinal strain in the differential diagnosis between cardiac amyloidosis and hypertrophic myocardiopathy

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INTRODUCTION

Differential diagnosis by echocardiography between cardiac amyloidosis (CA) and hypertrophic cardiomyopathy (HCM) is based on the evaluation of left ventricular ejection fraction (LVEF) and global longitudinal strain (GLS) of the entire myocardial wall. Nevertheless, histopathological studies describe a higher involvement of subendocardial tissue in CA. The aim of our study was to evaluate whether the subanalysis of the GLS by layers (subendocardial and subepicardial) and segments (apical and basal) can provide further information.

METHODS

Retrospective study including 33 consecutive patients diagnosed with CA (with histological confirmation and imaging tests) or HCM by established criteria. Advanced myocardial deformation analysis software was used for both subendocardial and subepicardial evaluation of the left ventricle wall by transthoracic echocardiography.

RESULTS

Seventeen patients (52%) had CA and sixteen (48%) had HCM. Differences were observed in LVEF (52.9 ± 10.9% vs 62.4 ±5.0%; p = 0.004), but not in the analysis of the entire wall GLS (-12.3 ± 4.9 vs -13.4 ± 2.8; p = 0.457) nor in the LVEF/GLS ratio (4.7 ± 1.4 vs 4.8 ± 1.1; p = 0.718). In the layered analysis there was no difference in subendocardial GLS (-16.2 ± 5.0 vs -16.4 ± 3.2%; p = 0.916) or subepicardial GLS (-11.7 ± 4.1 vs -11.6 ±2.7%; p = 0.945); however, the increase in GLS from base to apex was greater for CA than for HCM both at subepicardial level (increase: 101% vs 16%; p = 0.006) and subendocardial level (increase: 242% vs 114%; p = 0.006), with inversion of the greatest values for each group (Fig. 1).The ratio (apical GLS/basal GLS) was diagnostic predictor of CA (area under the curve = 86%; p = 0.002): a value >2 presented a sensitivity of 84% and a specificity of 85% for the diagnosis of CA.

CONCLUSIONS

CA presents an impairment of both subendocardial and subepicardial deformation in transthoracic echocardiography. These patterns provide additional information on differential diagnosis with HCM.

Abstract P940 Figure. Subendo vs subepicardial mean values