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## Pericardial/Myocardial Disease

### DIAGNOSIS AND DIFFERENTIATION OF INFILTRATIVE, STORAGE, AND INFLAMMATORY DISEASE FROM HYPERTROPHIC CARDIOMYOPATHY USING 320 SLICE CT AND ELECTROCARDIOGRAM

ACC Moderated Poster Contributions

McCormick Place South, Hall A

Sunday, March 25, 2012, 9:30 a.m.-10:30 a.m.

Session Title: Pericardial/Myocardial Disease I

Abstract Category: 12. Pericardial/Myocardial Disease

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**Background:** Diagnosis and differentiation of infiltrative, storage, and inflammatory diseases from hypertrophic cardiomyopathy (HCM) are important and difficult.

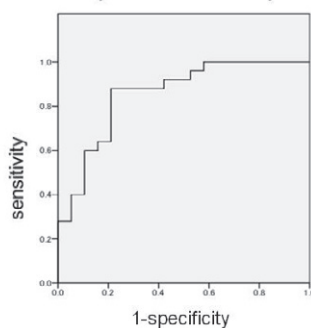
**Method:** 44 subjects (30 male) with asymmetrical left ventricular (LV) wall thickening on transthoracic echocardiogram (25 HCM, 19 non HCM (10 cardiac amyloidosis, 6 cardiac sarcoidosis, 2 Fabry disease, 1POEMS syndrome) were recruited.

**Results:** Myocardial fibrosis (MF) (or edema), and additional wall thickening at any site ( $\geq$  one) in right atrium, ventricle or left atrium on CT were observed in 78.9, 52.6% in non HCM, 48.0, 12.0% in HCM subjects; MF frequency and additional wall thickening were significantly higher in non HCM subjects ( $P=0.037$ ,  $0.003$ , respectively). Using presence of MF and additional wall thickening, sensitivity, specificity in differentiating non HCM from HCM subjects were 78.9, 52.0% in MF and 52.6, 88.0% in additional wall thickening, respectively. RV5+SV1 voltage on ECG X chest wall thickness on CT were significantly lower in non HCM subjects ( $293\pm 255\text{mm}^2$ ) than in HCM subjects ( $744\pm 397\text{mm}^2$ ) ( $P<0.001$ ). Receiver operating characteristic (ROC) curves used to analyze RV5+SV1 voltage X chest wall thickness to distinguish both groups, revealed area under curve of 0.855, best cutoff point of 38.4mm<sup>2</sup> (sensitivity 88.0%, specificity 78.9%).

**Conclusion:** Non HCM subjects had high frequency of MF and additional wall thickening which differentiated both groups with high accuracy as well as RV5+SV1 voltage X chest wall thickness.

|   | Non-HCM         | HCM             | P-value        |
|---|-----------------|-----------------|----------------|
| Age   | 58.7 $\pm$ 12.1 | 64.9 $\pm$ 11.4 | $P=0.092$      |
| Sex (male)  | 12 (60.2%)      | 10 (72.0%)      | $P=0.533$      |
| Hypertension  | 6 (31.8%)       | 15 (80.0%)      | $P=0.062$      |
| Diabetes mellitus   | 2 (10.5%)       | 7 (28.0%)       | $P=0.155$      |
| Hyperlipidemia  | 4 (21.1%)       | 12 (48.0%)      | $P=0.068$      |
| <b>320 slice CT</b>   |                 |                 |                |
| Focal left ventricular wall thickening  | 6 (31.8%)       | 11 (44.0%)      | $P=0.402$      |
| Myocardial fibrosis or edema  | 15 (78.9%)      | 12 (48.0%)      | $P=0.037^*$    |
| Additional wall thickening at any site ( $\geq 1$ ) in right atria, ventricle or left atria | 10 (52.6%)      | 3 (12.0%)       | $P=0.003^*$    |
| <b>ECG</b>  |                 |                 |                |
| RV5+SV1 voltage (mm)  | 17.4 $\pm$ 10.7 | 39.0 $\pm$ 19.0 | $P<0.001^{**}$ |
| RV5+SV1 voltage (mm) X chest wall thickness on CT (mm)                                      | 293 $\pm$ 255   | 744 $\pm$ 397   | $P<0.001^{**}$ |
| Presence of inverted T wave   | 6 (31.8%)       | 20 (80%)        | $P=0.001^{**}$ |

ROC curve to analyze RV5+SV1 voltage on ECG X chest wall thickness on CT to distinguish Non HCM subjects from HCM subjects.



Area under curve : 0.855  
Best cut off point : 38.4mm<sup>2</sup>  
(Sensitivity 88.0%,  
Specificity 78.9%)