



## Non Invasive Imaging (Echocardiography, Nuclear, PET, MR and CT)

**DILATED MID-ASCENDING AORTA IN HYPERTROPHIC CARDIOMYOPATHY IS ASSOCIATED WITH DYNAMIC LEFT VENTRICULAR OUTFLOW TRACT OBSTRUCTION AND NOT WITH GENETIC ABNORMALITIES**

Poster Contributions  
Poster Hall, Hall C  
Friday, March 17, 2017, 3:45 p.m.-4:30 p.m.

Session Title: Emerging Applications of Echocardiography  
Abstract Category: 28. Non Invasive Imaging: Echo  
Presentation Number: 1160-214

Authors: *Lily Ann Watson, Afshan Husain, Mirza Mujadil Ahmad, Mirza Nubair Ahmad, Michelle Bush, Khawaja Afzal Ammar, Bijoy K. Khandheria, A. Jamil Tajik, Aurora Cardiovascular Services, Aurora Sinai/Aurora St. Luke's Medical Centers, Milwaukee, WI, USA*

**Background:** Prior studies have suggested a relationship between aortic dilatation and hypertrophic cardiomyopathy (HCM). There are no data evaluating the relative strength of association between dilated aorta and HCM in terms of whether the dilatation was mediated by left ventricular outflow tract (LVOT) obstruction or due to hereditary factors.

**Methods:** We retrospectively reviewed the medical and echocardiography records of the 175 patients with HCM seen and characterized by AJT in a tertiary-care HCM center. Of these, 124 received genetic testing. The patients (n=175) were categorized to have significant LVOT obstruction if the baseline dynamic LVOT gradient was  $\geq 20$  mmHg. All the patients underwent measurement of the sinus of Valsalva (SV) and mid ascending aorta (mAA) with leading edge-to-leading edge technique in diastole. The aorta was defined as dilated if it was  $>4$  cm in the SV or mAA.

**Results:** Out of the 124 patients tested, 56 (45%) were found to be gene-positive. The most common gene abnormalities detected were mutations in MYBPC3 (22%), MYH7 (13%) and TNNT2 (0.2%). Out of all 175 patients, the mean LVOT gradient was  $24 \pm 34$  and a range of 0-160 mmHg, with 49 patients having a gradient  $>20$  mmHg. The gene-negative patients had a higher mean dilated SV (3.39 cm vs 3.12 cm;  $P=0.0038$ ) and dilated mAA (3.3 cm vs 3 cm;  $P=0.005$ ) than gene-positive patients (n=56). Gene-positive patients had a slightly lower prevalence of dilated SV (11% vs. 15%) and mAA (7% vs. 10%), which was not statistically significant. Patients with a baseline LVOT gradient  $\geq 20$  mmHg had a 4 times higher prevalence (16% vs 4%) of dilated mAA ( $>4$  cm) than those with LVOT gradient of  $<20$  mmHg (OR: 4.1, 95% CI 1.17-14.4,  $P=0.019$ ), whereas no significant relationship was seen with dilated SV (OR: 1.7, 95% CI 0.61-4.8,  $P=0.3$ ). This association with dilated mAA persisted after adjusting for hypertension, aortic stenosis, aortic regurgitation and aortic prosthesis in stratified and multivariate analyses.

**Conclusions:** The dilatation of mAA in patients with HCM appears to be more strongly associated with baseline dynamic LVOT obstruction than with genetic abnormalities.