Aortopathy in Hypertrophic Cardiomyopathy; The Association with Sinus of Valsalva versus Mid Ascending Aorta. An Epidemiological Study.

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BACKGROUND
- A few prior studies have demonstrated the increased prevalence of dilated ascending aorta in patients with hypertrophic cardiomyopathy (HCM).
- There are no studies evaluating the relative association of HCM with sinus of Valsalva (SV) versus mid ascending aorta (MAA).
- In addition, the mechanism behind aortic dilation in HCM is unclear, as to whether it is acquired or genetically mediated.

OBJECTIVE
- This study was carried out to test whether the prevalence of dilated SV was similar to prevalence of MAA in patients with HCM.

METHODS
- Echocardiography reports of patients (n=65,843; 46.5% male), referred to tertiary care center from January 2011 to November 2014 with adequate data on aortic parameters (diameter of SV/MAA) were reviewed.
- Electronic medical records were queried to obtain patients with HCM using ICD 9 codes.
- Aortic dilation was defined based on American Society of Echocardiography guidelines published in 2015.
- The records were evaluated for presence of genetic studies.

RESULTS
- Of the 65,843 patients, 553 HCM patients were identified, out of which 48% were men.
- The mean age was similar in both HCM and general population (63.7 ±16.5 vs. 64.3 ±17.3, p=0.384).
- The mean diameter of SV (3.21 ±0.51 vs. 3.08±0.46; p = <0.0001) and MAA (3.27±0.46 vs. 3.22±0.49; p=0.0378) was higher in HCM population.

MULTIVARIATE ANALYSIS
- In HCM population, the prevalence of dilated SV (14% vs. 5%; p=0.0001) and dilated MAA (21% vs. 17%; p=0.064) was higher than the general population.
- As compared to general population, HCM patients had higher multivariate odds of dilated SV (Odds Ratio (OR)=2.37; 95% CI =1.57-3.47; p=0.0001) but lower odds for developing dilated MAA (OR=1.16; 95% CI =0.91-1.46; p=0.22).

GENETIC DATA
- Only 127 patients with HCM had genetic data available, out of which 67 were positive for genetic abnormalities seen in HCM.
- In HCM patients, the odds of dilated aorta (DA) were lower in those with gene abnormality (OR 0.58; p=0.2), but did not reach statistical significance.

STRENGTHS
- Large Sample Size
- Actual echocardiographic images used for the measurement of aorta instead of chart review.
- Contemporary Clinical Practice.

LIMITATIONS
- Retrospective study
- Selection Bias

CONCLUSIONS
- These data suggest that HCM is associated with increased prevalence of dilated SV, but not MAA.
- The lower odds of DA in HCM patients who were gene positive, suggest that this association may not be genetically mediated.
- Further studies are required to identify the pathophysiology behind this association.