ACC.13
62nd Annual Scientific Session & Expo
TCT@ACC-i2

E1042
JACC March 12, 2013
Volume 61, Issue 10

Imaging

LEFT VENTRICULAR DIAMETER FOR CLASSIFICATION OF LEFT VENTRICULAR SIZE IN PATIENTS WITH VALVULAR HEART DISEASE: IS THERE A ROLE FOR INDEXING TO BODY SIZE?

Poster Contributions
Poster Sessions, Expo North
Sunday, March 10, 2013, 3:45 p.m.-4:30 p.m.

Session Title: Multimodality Imaging in Valvular Heart Disease
Abstract Category: 18. Imaging: Echo
Presentation Number: 1270-348

Authors: *Smadar Kort, Upasna Malhotra, Aditi Malhotra, Jie Yang, Qiao Zhang, Luis Gruberg, Stony Brook University Medical Center, Stony Brook, NY, USA*

Background: Increased Left ventricular internal diameter (LVIDd) is an indication for surgery in severe asymptomatic valvular regurgitation. Despite gender specific normal ranges, an absolute value (aLVIDd) is now used. Although intuitively a better parameter, the role of an indexed LVIDd is unknown.

Methods: We applied 2 indexed LVIDd parameters (LVIDd/height, LVIDd/BSA) to 831 adult patients with at least moderate mitral or aortic regurgitation, 47.7% women, 35.1% overweight, 26.7% obese. The agreement with aLVIDd for classifying degree of LV dilatation was assessed by weighted Kappa coefficients (κ). Sensitivity and specificity for diagnosing severely dilated LV were calculated.

Results: Substantial agreement found between LVIDd/height and aLVIDd in all patients, and when divided by gender, BMI, age, and LVEF ($\kappa >$ 0.72 for all). In contrast, substantial agreement found between LVIDd/BSA and aLVIDd only in normal BMI ($\kappa = 0.63$), while moderate agreement found in all patients (κ=0.51), females ($\kappa = 0.54$), males ($\kappa = 0.48$), overweight ($\kappa = 0.60$), those younger than ($\kappa = 0.48$) and 74 years or older ($\kappa = 0.55$), and those with LVEF $\leq$ 40% ($\kappa = 0.47$). Only fair agreement found between LVIDd/BSA and aLVIDd in obese ($\kappa = 0.25$) and those with LVEF>40% ($\kappa = 0.40$). The sensitivity of LVIDd/height for detecting severely dilated LV was significantly higher than that of LVIDd/BSA in all patients (98.41% vs 44.44% p<0.0001), with similar specificity and positive predictive value (95.3% vs 97.9%, 63.3% vs 63.6%). These findings remain the same when separating patients by gender, BMI, age or LVEF. Only in normal BMI similar sensitivities found (100% vs 93.75%). Using aLVIDd as gold standard, LVIDd/height identified severely dilated LV in all but 1 obese male <74 years old with LVEF $\leq$ 40%. In addition, LVIDd/height identified 36 patients with severely dilated LV not identified by aLVIDd, of them 23 were males, 9 overweight, 15 obese, 19 of age 74 or older and 26 with LVEF $\leq$ 40%.

Conclusions: LVIDd/height greatly agreed with aLVIDd for classifying LV size in diverse patients. It is significantly more sensitive than LVIDd/BSA for detection of severely dilated LV, and was able to identify patients missed by current criteria.