Background Hypertrophic cardiomyopathy (HCM) is a common inherited cardiac condition. Multiple factors have been identified towards high risk of sudden cardiac death (SCD) as outlined in the ESC guidelines. LV wall thickness (LV_{wt}) is an identified risk. Left ventricular mass indexed to body surface area (LV_{IBSA}) increases with wall thickness and may predict risk not currently utilised in the risk score.

Objectives 1. Compare differences in LV_{wt} using transthoracic echocardiogram(TTE) and MRI and the effect on ESC risk score.

2. Observe for association of LV_{IBSA} and incidence of non-sustained ventricular tachycardia(NSVT) either on 24 hour holter monitor or following ICD insertion.

Methods We retrospectively reviewed patients between January 2010 to July 2015 who were confirmed to have HCM on MRI. ESC Risk was calculated using LV TTE and MRI LV_{wt}. LV_{IBSA} was calculated from MRI images and compared with incidence of VA on holter monitors. Patients who received ICD had follow up and VA incidence recorded.

Results 103 patients with confirmed HCM were identified with median age of 60 (range 15–87). Non sustained VT (NSVT) was recorded in 20 (19.4%) patients while 16 patients had missing or no record of holter. Primary prevention ICDs (ICD $_{1^*}$) were inserted in 20 (19.4%) patients. MRI identified a higher absolute LV_{wt}compared to TTE in 68.9% of patients. This lead to an increase in ESC risk score from low risk to high risk in 5% of the patients (ESC score>4). LV_{IBSA} was higher in the patients with holter positive for VA (mean 109.7g/m^2, 95% CI [92.8, 126.6] vs 89.8g/m^2, 95% CI [83.2, 96.4], p=<0.05). Patients with ICD (n=20) were followed up for 52.6 months±5.8 months. One patient with ICD $_{1^*}$ had VA detected after 7 months of ICD insertion and treated successfully with 1 anti-tachycardia pacing algorithm.

Conclusion The detection of HCM through use of MRI allows for earlier diagnosis of patients and provides for accurate and reproducible measurements of LV_{wt} and $LV_{IBSA\ x}$ as opposed to TTE. In our retrospective study it is suggested that higher LV_{IBSA} is related to increase incidence of VA. If LV_{IBSA} derived from MRI were applied to ESC guidelines, this could result in more patients ICD $_{1^*}$. We feel this should be explored with larger studies to see if LV_{IBSA} is an independent risk factor for SCD.

132 THE IMPORTANCE OF CONTRACTILE RESERVE WHEN ASSESSING ASYMPTOMATIC PATIENTS WITH AORTIC STENOSIS

[1]Jet van Zalen*, [2]Sveeta Badiani, [1]Lesley Hart, [3]Gary Brickley, [3]Louisa Beale, [1]Andrew Marshall, [1]Nikhil Patel, [2]Guy Lloyd. *[1]East Sussex Healthcare NHS Trust; [2]Barts Heart centre; [3]University of Brighton*

10.1136/heartjnl-2017-311726.131

Asymptomatic patients may exhibit symptoms during objective exercise testing, but whether symptoms are due to the obstructivity of the valve (typified by the mean gradient) or underlying ventricular function remains unknown. While the mean gradient is an easy parameter to measure no consensus about the measurement of contractile reserve exists. Longitudinal abnormalities may occur in the presence of a normal ejection fraction and the augmentation of these parameters is poorly described. The aim of this study was to examine the echocardiographic predictors of exercise ability during cardiopulmonary exercise testing combined with stress echocardiography.

24 asymptomatic patients with moderate to severe or severe aortic stenosis and preserved ejection fraction underwent stress echocardiography with simultaneous cardiopulmonary exercise testing. The primary assessment of exercise ability was VO_2peak. Echocardiography was measured at rest and during maximal exercise (defined as RER>1)

VO_2peak showed a poor relationship with conventional resting parameters of severity including peak velocity (rho=0.07; p=ns), mean pressure gradient (rho=0.3; p=ns), AVA (rho=0.4; p=ns), dimensionless index (rho=0.05; p=ns), resting systolic function (by EF (rho=−0.18; p=ns) and TDI (rho=0.39; p=ns). During exercise systolic augmentation had a good relationship with exercise ability (rho=0.77; p<0.0001) but the relationship with exercise mean gradient was weaker (rho=0.57; p=0.005) and there was no relationship with exercise LVEF (rho=0.18; p=ns).

Longitudinal systolic function during peak exercise is the strongest predictor of exercise ability when compared to conventional measures of severity of aortic stenosis.

133 CARDIOPULMONARY EXERCISE TESTING: DOES ETHNICITY MATTER?

Keerthi Prakash*, Stathis Papatheodorou, Bode Ensam, Chris Miles, Saeed Azizi, Paulo Bulleros, Zephryn Fanton, Aneil Malhotra, Andrew D'Silva, Gherardo Finocchiaro, Traceey Keteepe-Arachi, Maite Tome, Nicholas Bunce, Juan-Carlos Kaski, Michael Papadakis, Sanjay Sharma. *St George's, University of London*

10.1136/heartjnl-2017-311726.132

Introduction Hypertrophic cardiomyopathy (HCM) is the largest cause of sudden cardiac death in athletes. Differentiation between HCM and athletic cardiac adaptation is not always straightforward. Cardiopulmonary exercise testing (CPET) is useful in this context, with a peak VO_2>120% predicted commonly used to differentiate athletes with HCM from those with physiological left ventricular hypertrophy. This value however is derived from a predominantly white population. Differences with ethnicity have been well documented on the ECG and echocardiogram of both athletes and individuals with HCM, however, ethnic differences in their physiology have not been well investigated to date.

Purpose To assess if there is a significant difference on CPET in HCM patients of black and white ethnicity.

Methods Cardiopulmonary exercise testing data was prospectively and retrospectively analysed from a cohort of 49 sedentary HCM patients assessed in a quaternary referral centre (36 white, 38 male; aged 15–65 years). Inclusion criteria: HCM patients of black or white ethnicity, NYHA 1, resting LVOT gradient<40 mmHg, no ICD *in-situ* and having completed a maximal CPET (defined as: R 1.1 and test terminated due to breathlessness/muscular fatigue).