was measured from regional strain curves for each segment, as the time from the beginning of the Q-wave to the time-to-peak (cTPE) (TPS), mechanical dysynchrony was estimated as TPS-SD. From 12-lead surface ECG, QT interval, QT dispersion, and its corrected values were measured. According to QT(c) (QT(c) >440 or <440 ms), patients were categorized into two groups: long QT and normal QT. In the long QT group, QT(c) and QT in all left ventricular (LV) segments were significantly prolonged; (c) and (SR) were markedly attenuated compared with the other two groups (P <0.001). LV dysynchrony was significantly greater (P <0.001) and PSS was more frequent in long QT HCM compared with the other two groups (P <0.001). TPS-SD was correlated positively with QT(c)(r=0.38, P <0.01) and QT (r=0.45, P <0.001). QT(c)>440 ms identified LV mechanical dysynchrony with 70% sensitivity, 100% specificity, and positive predictive value. QT interval prolongation on surface ECG shows significant association with mechanical dysynchrony and LV dysfunction in HCM. This may add pathophysiological insight into understanding ECG changes in such myocardial disease.

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Aortic biomechanics in hypertrophic cardiomyopathy
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Background: Ventricular-vascular coupling is an important phenomenon in many cardiovascular diseases. The association between aortic mechanical dysfunction and left ventricular (LV) dysfunction is well characterized in many disease entities, but no data are available on how these changes are related in hypertrophic cardiomyopathy (HCM).

Aim of the work: This study examined whether HCM alone is associated with an impaired cardiovascular coupling function with cardiovascular risk factors and the relation of these changes, if any, to LV deformation and cardiac phenotype.

Methods: 141 patients with HCM were recruited and compared to 66 age- and sex-matched healthy subjects as control group. Pulse pressure, aortic strain, stiffness and distensibility were calculated from the aortic diameters measured by M-mode echocardiography and blood pressure obtained by sphygmomanometer. Aortic wall systolic and diastolic velocities were measured using pulse wave Doppler tissue imaging (DTI). Cardiac assessment included geometric parameters and myocardial deformation (strain and strain rate) and mechanical dyssynchrony. The pulsatile change in the aortic diameter, distensibility and aortic wall systolic velocity (AWS) were significantly decreased and aortic stiffness index was increased in HCM compared to control (P <0.001). In HCM AWS was inversely correlated to age (r=-0.32, P <0.0001), MWT (r=-0.22, P <0.008), LVMi (r=-0.20, P <0.02), E/Ea (r=-0.16, P <0.03) LVOT gradient (r=-0.19, P <0.02) and severity of mitral regurgitation (r=-0.16, P <0.03) but not to the concealed LV deformation abnormalities or mechanical dyssynchrony. On multivariate analysis, the key determinant of aortic stiffness was LV mass index and LVOT obstruction while the role LV dysfunction in aortic stiffness is not evident in this population.

Conclusion: HCM is associated with abnormal aortic mechanical properties. The role L V dysfunction in aortic stiffness is not evident in this population. The relation of these changes, if any, to LV deformation and cardiac phenotype is methodologically challenging.

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The relationship between agatston calcium score and global longitudinal strain in patients suspected of stable angina pectoris
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Background: Cardiac computed tomography (CT) scan is often performed to evaluate coronary artery status in patients with stable angina pectoris (SAP). Echocardiography may assist the selection of patients in need of cardiac CT.

Purpose: To investigate the relationship between layer-specific global longitudinal strain (GLS) by speckle tracking echocardiography and Agatston calcium score.

Methods: In a clinical registry study of 592 patients suspected of SAP (mean age of 59 years, 43.6% male, mean body mass index (BMI) of 26, 15.5% with diabetes, 26.3% with hypertension) where everyone underwent both an echocardiography type of cardiovascular exam and a CT scanning exam, the layers and the relation of these changes, if any, to LV deformation and SAP were compared.

Results: GLS decreased incrementally with increasing tertile of calcium score (1st tertile: -19.6%; 2nd tertile: -19.2%; 3rd tertile: -18.4%; p for trend 0.002) (figure 1). Of the 592 patients, 147 (24%) were classified as having a high calcium score. In the high calcium group, LVMI and -17.4% ± 0.5 in patients with high calcium score, p <0.001. GLS was -19.4% ± 0.15 in patients with low calcium score and -17.4% ± 0.5 in patients with high calcium score, p <0.001. GLS remained a significant independent predictor of high calcium score after adjustment for clinical risk factors being age, gender, hypertension, hypercholesterolemia, smoking, diabetes, BMI, family history of cardiovascular disease and heart rate (OR 1.09 [1.02; 1.16], p <0.01).

Conclusion: In patients suspected of having SAP, GLS becomes incrementally more impaired compared with the other two groups (P <0.001). LV dyssynchrony is significantly greater (P <0.001) and PSS was more frequent in long QT HCM compared with the other two groups (P <0.001). TPS-SD was correlated positively with QT(c)(r=0.38, P <0.01) and QT (r=0.45, P <0.001). QT(c)>440 ms identified LV mechanical dysynchrony with 70% sensitivity, 100% specificity, and positive predictive value. QT interval prolongation on surface ECG shows significant association with mechanical dysynchrony and LV dysfunction in HCM. This may add pathophysiological insight into understanding ECG changes in such myocardial disease.