

Conclusion: In a low risk general population, the IVCT provides novel prognostic information on the long-term risk of HF.

P2749
Tricuspid anulus displacement (TAPSE) is a determinant of cardiac stroke volume independently of left ventricular function

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Introduction: The determinants of cardiac stroke volume (SV), which is the final output of ventricular function, have been incompletely established. In particular it is unclear whether right ventricular function contributes to cardiac output independently of left ventricular (LV) and valves function.

Methods: Unselected consecutive patients were prospectively enrolled in multiple Italian centers.

A comprehensive echocardiographic evaluation was performed. LV volumes and ejection fraction (EF) were measured by means of biplane Simpson methods. Right ventricular function was measured by tricuspid annulus displacement (TAPSE). SV was measured at left ventricular outflow tract level. Tissue Doppler was performed and systolic (S') and diastolic tissue velocities registered. Averaged E/E' was measured. Mitral (MR), tricuspid (TR) and aortic (AR) regurgitation were semi-quantitatively evaluated. Systolic pulmonary pressure (sPAP) was measured by TR velocity.

Results: 1253 patients (mean age 65.5±15.1; male 54.5%) were included. Patient presented an EF of 56.2±10.9% (18.8% with an EF below 50%), mean TAPSE of 21.4±4.2 mm and E/e' of 10.2±6.3. At univariate analysis, EF, S', E/E', EDV, AF, TR, AR and TAPSE were associated with SV (p<0.0001 for all). After adjustment for confounders, TAPSE maintained an independent association with SV (OR 1.4; 95% CI 1.1–2.2; p<0.0001). The role of TAPSE is maintained even in the subgroups of EF impairment, diastolic dysfunction and pulmonary hypertension (Table).

TAPSE and SV in different subgroups

	Odds Ratio	95% CI	p value
EF ≥50%	1.47	1.02–1.91	<0.001
EF <50%	1.41	0.68–2.15	<0.001
E/e' ≥14	2.32	1.20–3.44	<0.001
E/e' <14	1.29	0.77–1.82	<0.001
sPAP ≥35 mmHg	1.82	1.25–2.39	<0.001
sPAP <35 mmHg	1.46	0.55–2.37	0.002

Discussion: SV is the final product of a complex interplay of multiple factors. Our data shows that TAPSE has an important independent and incremental role in its determinations. The present study underlies that a careful evaluation of right ventricular function is crucial in understanding cardiac dynamics.

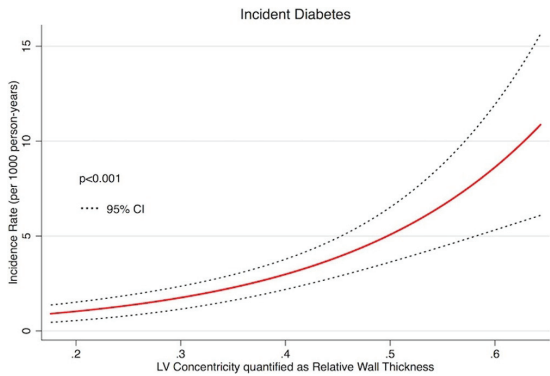
P2750
Left ventricular concentric geometry predicts incident diabetes mellitus independent of established risk factors in the general population: the copenhagen city heart study

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Background: Subtle impairments in left ventricular (LV) function and geometry are common findings in diabetic individuals. However, whether these impairments precede the development of Diabetes Mellitus (DM) is not entirely clear.

Methods: Echocardiograms from 1694 individuals from the general population free of prevalent diabetes mellitus or heart failure were analyzed by conventional and tissue Doppler imaging methods. Left ventricular (LV) concentric geometry was defined as either LV concentric remodeling or LV concentric hypertrophy as directed in contemporary guidelines. The severity of LV concentricity was assessed by relative wall thickness (RWT) calculated as posterior wall thickness (PWT) indexed to left ventricular internal diameter at end diastole (LVIDd) (RWT = 2*PWT / LVIDd). End point was incident DM.

Results: Median follow-up time was 12.6 years (IQR: 12.0–12.8 years). Follow-up was a 100%. A total of 55 participants (3.3%) developed DM during follow-up. At baseline, the prevalence of a concentric LV geometric pattern was significantly higher (41.8% vs 20.3%, p<0.001) in individuals who developed DM during follow-up. In a final multivariable model adjusting for age, sex, systolic blood pressure, smoking status, total cholesterol levels, triglyceride levels, BMI, blood glucose, HbA1C levels, prevalent ischemic heart disease and A wave velocity, LV concentric geometry and RWT remained significantly associated with incident DM (LV concentric geometry: HR 2.06, 95CI 1.15–3.71, p=0.016) (RWT: HR 1.43, 95CI 1.08–1.90, p=0.012, per 0.1 increase). This association remained despite adjustment for established risk factors for DM.



Incident diabetes and LV concentricity

Conclusion: Altered LV geometry may precede the development of DM. LV concentric geometry determined by echocardiography and the severity of LV concentricity evaluated as RWT are associated with incident DM in the general population.

P2751
Mechanical dispersion as marker of left ventricular dysfunction and prognosis in stable coronary artery disease

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Background: Assessment of global longitudinal strain (GLS) is superior to ejection fraction (EF) in evaluation of left ventricular (LV) dysfunction in patients with stable coronary artery disease (CAD). However, the role of mechanical dispersion (MD) in this context is unresolved.

Objectives: We aimed to evaluate the potential role of MD as marker of subtle LV dysfunction and long-term prognosis in patients with stable CAD.

Methods: EF, GLS and MD were assessed in 160 patients with stable CAD, one year after successful coronary revascularization. Serum levels of high-sensitivity cardiac troponin I and amino-terminal pro B-type natriuretic peptide were quantified as markers of LV dysfunction. The primary end point was defined as all-cause mortality, whereas the secondary end point was defined as the composite of all-cause mortality and hospitalization for acute myocardial infarction or heart failure during follow-up.

Results: MD was successfully quantified in 98% of the patients (46±14 ms, [mean±SD]). There were no significant associations between EF and the biochemical markers of LV dysfunction, while both MD and GLS correlated with hs-cTnI (R=0.450 and R=0.307, p<0.01) and NT-proBNP (R=0.379 and R=0.202, p<0.05). During a mean (±SD) follow-up of 8.5±0.4 years, 14 deaths and 29 secondary events occurred. Only MD was significantly increased in nonsurvivors, and also associated with both the primary and secondary end point in a Cox regression model, after adjustment for EF and GLS.

Conclusions: In patients with stable CAD, MD may be a promising marker of subtle LV dysfunction and adverse prognosis.

CLINICAL USEFULNESS OF CARDIAC CT

P2752
Anatomy of coronary artery relevance to ablation in the pulmonary sinus

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Background: Ablation above pulmonary sinus of Valsalva (PSV) becomes increasingly common in certain ventricular outflow arrhythmia. Understanding of the regional anatomy is intensively concerned to avoid procedure complications.

Purpose: To describe the anatomic relationships of pulmonary sinus of Valsalva (PSV) to its adjacent structures using analysis of computed tomographic coronary angiograms (CTCA).

Methods: We studied 145 patients investigated for chest pain with CTCA. The relationships between the PSV and adjacent structures were described by analysis of 2-dimensional images and 3-dimensional reconstructions.

Results: The left adjacent sinus (LAS) located within 5 mm of the left main coronary artery (LMCA) in 67% (within 2 mm in 19%) and from the LAD in 87% (within 2 mm in 36%). The anterior sinus (non-adjacent sinus) was within 5 mm of the left anterior descending coronary artery (LAD) in 1% and out of 5 mm from LMCA in all cases. 93% LAS was within 5 mm of the left aortic sinus of Valsalva (within 2 mm in 27%), remaining 80% right adjacent sinus (RAS) within 5 mm from as-