ion fractions were measured by 3D echocardiography (Philips SONOS 7500®). Regional right ventricular systolic velocities and strain were measured by Tissue Doppler Imaging (GE Vivid 7®). All subjects had intrinsic ventricular rhythm. Values were expressed as mean±SD.

Results: The right ventricle had slightly reduced systolic function on 3D echocardiography. The results of the tissue Doppler analysis are shown in the table. Conclusion: Systolic strain is reduced in the mid and apical segments of the RV free wall, even before the involvement is apparent by 2D and SD echo and before symptoms occur. APVD may be localized and the variation in the measurements calls for some caution in the interpretation of the findings.

552 Strain echocardiography in hypertrophic cardiomyopathy. Relation to risk factors of sudden cardiac death

D.R. Saura Espin1, V. Climent2, M.D. Espinosa1, E. Paya2, J.R. Gimeno3, F. Marín2, G. de la Morena2, M. Valdes1. 1Murcia, Spain; 2Hospital General Universitario, Department of Cardiology, Alicante, Spain; 3Hospital Virgen de la Arrixaca, Department of Cardiology, Murcia, Spain

Echocardiography has a major role in evaluation of hypertrophic cardiomyopathy. New tissue Doppler-based measurements could provide better insights into myocardial regional characterization and provide supplemental information in risk stratification. We aimed to study the relation between strain measurements and established sudden death risk factors.

Methods: 36 (aged 47±0.15; 27 male) consecutive patients with hypertrophic cardiomyopathy underwent echocardiography with Doppler-derived strain and strain rate measurements, stress test, Holter monitoring, and an extensive clinical examination.

Results: Maximal left ventricular wall thickness (MLVWT) was 20.1±4.9 mm. 11 (31%) had significant LVOT obstruction. 31% had abnormal blood pressure response during exercise test, 69% were in NYHA functional class I. 16% had no sustained ventricular tachycardia (NSVT) on Holter. 42% had none, 33% one, and 25% had ≥1 risk factors for sudden death. Septal strain was associated with NSVT on Holter, severe LVOT obstruction, and MLVWT. On multivariate analysis, severe LVOT obstruction and MLVWT remained associated. Number of risk factors was related to impaired septal strain, figure 1 (p=0.0002). Septal strain correlated to left atrial dimension (r=0.40, p=0.03).

Conclusions: Doppler-derived strain imaging relates to clinical and echocardiographic risk factors of sudden death in hypertrophic cardiomyopathy.

553 Differentiation of transient left ventricular apical ballooning from anterior myocardial infarction

B. Schneider1, S. Koch2, J. Sten3, S. Sana Klinikum, Klinik fuer Kardiologie, Luebeck, Germany; 2Sana Klinikum, Klinik fuer Kardiologie, Luebeck, Germany; 3Sana Klinikum Luebeck, Klinik fuer Kardiologie, Luebeck, Germany

Background: Transient left ventricular (LV) apical ballooning (AB) is characterized by chest pain, ECG changes and LV apical akinesia mimicking acute myocardial infarction in the absence of coronary artery disease. Since most AB patients are followed for a mean (±SD) of 33±15 months after dipyridamole (0.84 mg/kg over 10)-Doppler echocardiography.

Methods: 53 patients (New York Heart Association class I or II) with HCM were followed for a mean (±SD) of 33±15 months after dipyridamole (0.84 mg/kg over 10)-Doppler echocardiography.

Results: CFR on LAD was normal (≥2.0) in 36 and abnormal (≤2.0) in 15 patients. Eighteen events occurred during follow-up: 7 left atrium dilations, 5 atrial fibrillations, 3 hospitalizations for unstable angina, 1 cardioverter-defibrillator implantation, 1 pacemaker implantation and 1 sudden death. The event-free survival was significantly higher in patients with normal than in patients with abnormal CFR (p=0.00001) (Figure). With a Cox analysis, abnormal CFR on LAD (HR=8.7, 95% CI=2.7-27.4, p=0.0001) and interventricular septal thickness at end-diastole (HR=1.42; 95% CI=1.14-1.78, p=0.02) were independent prognostic indicators.

554 Coronary microvascular dysfunction in hypertrophic cardiomyopathy: Doppler echocardiography study

F. Rigo1, E. Pasanisi2, S. Gherardani, C. Zanella3, A. Raviele1, N. Domokos1, A. Varga1, E. Picano1, 1Umberto I Hospital, Cardiology Dept, Mestre, Italy; 2CNR Institute of Clinical Physiology, Pisa, Italy; 3Cesena Hospital, Cardiology Unit, Cesena, Italy; 4University of Sciences, Dept of Surgical Research, Szeged, Hungary; 5Szentgyorgy University, Cardiology, Szeged, Hungary; 6Director, Echocardiography and Stress Echo Lab, Senior Med. Researcher National Res. Council, Pisa, Italy

Background: Microvascular dysfunction, reflected by an inadequate increase in myocardial blood flow in response to dipyridamole infusion, is a recognized feature of hypertrophic cardiomyopathy (HCM) and may have prognostic impact. Coronary flow reserve (CFR) can be assessed on left anterior descending coronary artery (LAD) noninvasively with Doppler 2D-echocardiography.

Aims: To prospectively evaluate a cohort of patients with HCM after they had undergone quantitative assessment of CFR on LAD with ultrasound.

Methods: 53 patients (New York Heart Association class I or II) with HCM were followed for a mean (±SD) of 33±15 months after dipyridamole (0.84 mg/kg over 10)-Doppler echocardiography.

Results: CFR on LAD was normal (≥2.0) in 36 and abnormal (≤2.0) in 15 patients. Eighteen events occurred during follow-up: 7 left atrium dilations, 5 atrial fibrillations, 3 hospitalizations for unstable angina, 1 cardioverter-defibrillator implantation, 1 pacemaker implantation and 1 sudden death. The event-free survival was significantly higher in patients with normal than in patients with abnormal CFR (p=0.00001) (Figure). With a Cox analysis, abnormal CFR on LAD (HR=8.7, 95% CI=2.7-27.4, p=0.0001) and interventricular septal thickness at end-diastole (HR=1.42; 95% CI=1.14-1.78, p=0.02) were independent prognostic indicators.
Tissue Doppler analysis of systolic and diastolic velocities of the mitral annulus in patients with constrictive pericarditis and restrictive cardiomyopathy

T. Butz 1, L. Faber 1, N. Bogunovic 1, Y. Kim 1, C. Piper 1, H.K. Schmidt 1, N. Koerner 1, D. Horsbo 1, 1Heart Center NRW, Ruhr-Universitaet, Bochum, Department of Cardiology and Cardiac Surgery, Germany; 2Heart Center NRW, Ruhr-Universitaet, Dept Thorac Cardiovasc Surg, Bad Oeynhausen, Germany

Introduction: It has been suggested that Tissue Doppler Imaging (TDI) analysis of mitral annulus (MA) motion might be helpful to distinguish constrictive pericarditis (CP) from restrictive cardiomyopathy (RCM).

Methods: We studied the relationship between the early transmural flow velocity (E), the systolic (S) and early diastolic component (E') of MA motion by TDI, and LV filling pressures in 38 consecutive patients (pts.) with diastolic heart failure (IVS: INCFM or AHD). All pts. underwent a complete echocardiographic and hemodynamic assessment.

Results: Out of the 38 pts. (mean age: 59±12 years) 24 had CP, and 14 RCM; 20 pts. (53%) had sinus rhythm, and 18 (47%) atrial fibrillation. Mean pulmonary wedge pressure (PCW) was 21±4±6 mmHg, E was 105±39 cm/s, deceleration time of E was 141±57 ms without a significant difference between RCM and CP.

Mean pulmonary arterial pressure (PAP) was 26±8 mm Hg with a significant difference between RCM and CP (30±10 vs. 26±4 mm Hg, p<0.05).

S' assessed by TDI was significantly higher in pts. with CP (septal MA: 6.1±1.8 cm/s vs. 3.5±1.0 cm/s, p<0.001, lateral MA: 6.4±2.3 cm/s vs. 3.6±1.2 cm/s, p<0.001).

Pts. with CP showed a higher E' both on the septal and lateral side of the MA (13±6 cm/s vs. 3±1 cm/s, and 11±4 cm/s vs. 4±2 cm/s, resp. p<0.001). E' was <8 cm/s in all RCM pts. and >8 cm/s in 25/29 CP pts (83%). The 4 CP pts. with E'<8 cm/s either showed severe pericardial calcification, systolic dysfunction, or post-radiation syndrome.

Pts. with RCM showed a significantly higher E/E'-Ratio (septal MA: 26±9 vs. 12±8 cm/s, p<0.001).

Conclusion: TDI analysis of MA motion demonstrated decreased systolic and diastolic velocities in pts. with RCM and allows a differentiation between pts. with RCM and CP independent of cardiac rhythm. The diagnostic value of TDI analysis in CP can be limited in pts. with severe pericardial califications, systolic dysfuncation and post-radiation syndrome.