523 Improvement of left ventricular diastolic function after septal surgical myectomy or percutaneous septal alcohol ablation in patients with hypertrophic obstructive cardiomyopathy.
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Left ventricular outflow tract (LVOT) obstruction and diastolic dysfunction are responsible for dyspnoea in patients with hypertrophic obstructive cardiomyopathy (HOCM). Surgical myectomy and percutaneous septal alcohol ablation are effective treatments to relieve obstruction in these patients. To assess the effect of surgical and percutaneous septal reduction therapy (SRT) on LV diastolic function, 59 HOCM patients were studied at baseline and 3 to 4 months after septal myectomy (n=37) or alcohol ablation (n=22). There was a significant improvement in NYHA class and in peak oxygen consumption after SRT. LVOT pressure gradient was markedly reduced to a similar extent by both procedures. The ratio of early to late peak diastolic LV inflow velocities (E/A) and the ratio of early diastolic LV inflow velocity to lateral mitral annular velocity (E/Ea) significantly decreased after SRT (1.5±1.6 versus 0.9±0.8 and 17±9 versus 10±5 respectively). At baseline, 54% of patients had delayed relaxation and 35% showed a pseudonormal pattern on transmirtal inflow recording. After SRT, 89% of patients showed delayed relaxation. 80% of patients with a restrictive LV filling pattern before SRT had pseudonormal or delayed relaxation after SRT. Left atrial end at area systole decreased from 33±8 to 26±6 cm², p<0.05. Total area of mitral regurgitant jet also significantly decreased. There was no correlation between the change in diastolic pattern, E/A and E/Ea ratios and the change in mitral regurgitation. There were no significant differences in the changes of LV diastolic function indices between septal myectomy and alcohol ablation patients. Conclusion: Echocardiographic diastolic function parameters improved after SRT in HOCM patients with similar changes after septal myectomy and septal alcohol ablation. These changes in diastolic parameters were not related to the decrease in mitral regurgitation. Improvement in LV relaxation and decrease in LA pressure after SRT may contribute to the clinical amelioration of the patients.

524 Right ventricular function in hypertrophic cardiomyopathy.
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Background: Hypertrophic cardiomyopathy (HCM) is characterised by hypertrophy of the left ventricle (LV), but may also involve the right ventricle (RV). While much is known about the left ventricular function, little has been documented about the RV.

Material and methods: Twenty-five patients (11 females) with HCM and 26 healthy individuals (10 females), mean age 50±14 and 53±18 years respectively were studied by echocardiography. LV fractional shortening (FS) and LV inflow filling pattern (E and A-wave velocities) were determined. RV function was assessed by tricuspid annular plane systolic excursion (TAPSE) and Doppler tissue imaging (DTI).

Results: HCM patients had increased thickness of the interventricular septum and RV wall. The RV systolic long axis motion (TAPSE) was reduced and isovolumic relaxation time (IRT) in the patients. Systolic (S) and late diastolic (A) velocities did not differ between the groups.

Table 1: TAPSE, mm
- Histology                   Controls            p-value
- TAPSE, mm                  19±5.2                24±3±3.8              0.001
- RV thickness, mm           5.9±1.8               3.4±1.2              0.0001
- DTI-S, systolic, cm/s      13.0±5.2              15.1±3.2             NS
- DTI-E, early diastole, cm  9.5±3.7               14.3±4.1             0.001
- DTI-A, late diastole, cm/s 15.5±2.6              15.4±4.1             NS
- DTI, cm/s                  112±32                91±17                0.006
- DTI, ms                    95±42                 52±25                0.0001
- LV E/A ratio               1.5±0.9               1.2±0.5              NS
- FS, %                      45±13                 41±6                 NS

Conclusion: Cardiac hypertrophy was shown to be present in both the left and right ventricles in patients with hypertrophic cardiomyopathy. Disturbances in right ventricular function was detected in the systolic as well as the diastolic phase of the cardiac cycle. The data provide new information on right ventricular function in hypertrophic cardiomyopathy.

525 Echocardiographic prediction of hemodynamic effect of alcohol septal ablation for hypertrophic obstructive cardiomyopathy.
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Purpose: Alcohol septal ablation (PTLSMA) is an effective method in the treatment of symptomatic patients with hypertrophic obstructive cardiomyopathy (HOCM). In this study we studied the capability of echocardiographic parameters in predicting of left ventricular outflow tract (LVOT) pressure gradient decrease six months after PTLSMA.

Methods: The group of patients comprised 29 consecutive patients with symptomatic HOCM (17 women, mean age 64±14 years) enrolled for echocardiography-guided PTLSMA procedure. Clinical and echocardiographic data were collected at baseline and six months after PTLSMA.

Results: At six-month follow-up, both the maximal resting pressure gradient and the isosorbide dinitrate provoked gradient decreased significantly (69±44 to 19±17 mmHg and 111±53 to 25±22 mmHg, p<0.01). Left ventricular remodelling was associated with significant reduction of left ventricle (LVd) (p=0.05), decrease of left ventricular ejection fraction (LVEF) (p=0.01) and basal septum thickness (IVSd) (p=0.01). All patients reported an improvement of dyspnoea and angina pectoris at follow-up (p<0.01). There were statistically significant correlations between LVOT pressure gradient at follow-up and baseline echocardiographic predictors: IVSd and LVEF (r=0.62, p=0.002).

Conclusions: PTLSMA is effective method in the treatment of symptomatic patients with HOCM resulting in symptomatic improvement and left ventricular remodelling. Results of our study suggest that hemodynamic effect of PTLSMA could be predicted by baseline echocardiographic evaluation of IVSd and LVEF.

526 Comparative study of left ventricular diastolic function using pulsed tissue Doppler and cardiac MR in patients with hypertrophic cardiomyopathy.
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Background: Abnormalities in left ventricular (LV) diastolic function (d) are common in hypertrophic cardiomyopathy (HCM). Traditional pulsed Doppler-derived diastolic indices are not sensitive or preload independent techniques for evaluating LV diastolic properties, but two sensitive and preload-independent techniques are available to assess LV-df: pulsed tissue Doppler echocardiography (PTDI) and cardiac magnetic resonance imaging (CMR).

Methods: PTDI was performed by ATL HDI 5000 ultrasound system. Myocardial early diastolic (Ea) and late diastolic (Aa) velocities were measured at the septal (S) and the lateral (L) mitral annulus (MA). L and S Ea/Aa ratios were calculated. 1.5 T Siemens Vision Plus (Siemens, AG Germany) with a cardiac software package at the Institute of Diagnostics and Oncoradiology (University of Kaposvár) was used for cardiac imaging. ECG gated long axis and consecutive, multiple, no slice gap, 3,1 (Ddf in 10 pts), and 6,7 cm/s (Ddf in 3 pts) were collected at baseline and six months after PTSMA.

Results: At six-month follow-up, both the maximal resting pressure gradient and the isosorbide dinitrate provoked gradient decreased significantly (69±44 to 19±17 mmHg and 111±53 to 25±22 mmHg, p<0.01). Left ventricular remodelling was associated with significant reduction of left ventricle (LVd) (p=0.05), decrease of left ventricular ejection fraction (LVEF) (p=0.01) and basal septum thickness (IVSd) (p=0.01). All patients reported an improvement of dyspnoea and angina pectoris at follow-up (p<0.01). There were statistically significant correlations between LVOT pressure gradient at follow-up and baseline echocardiographic predictors: IVSd and LVEF (r=0.62, p=0.002).

Conclusions: PTLSMA is effective method in the treatment of symptomatic patients with HOCM resulting in symptomatic improvement and left ventricular remodelling. Results of our study suggest that hemodynamic effect of PTLSMA could be predicted by baseline echocardiographic evaluation of IVSd and LVEF.