321

Correlation between architectonic perturbations of left ventricular geometry, evaluated with 3D-echo, and perturbations of apical hemodynamics, leading to apical thrombosis in dilated cardiomyopathy.

I. Benedek, T. Hintea. University Hospital Mures, Cardiology Clinic, Targu-Mures, Romania

In dilated cardiomyopathy (DCM), preferential localisation of intracavitary thrombosis in the Left Ventricular (LV) apex could be explained by architectonic and hemodynamic perturbation of the LV shape, which create an apical thrombogenic area. Decrease of flow velocities and persistence of flow are more pronounced in areas where architectonic modifications occur (LV apex), favoring thrombus development at these sites.

Methods: Thirty-six patients with DCM - group A, and a control lot of 25 healthy subjects - group B. Ventricular shape and geometry were evaluated using B-mode echo. Doppler mapping of blood flow velocity in the LV was performed at different sites, along 3 longitudinal axes at 3 levels: basal, mediocentral and apical. Three-dimensional echocardiography (Sonos 5.500 - Agilent Technologies) was performed in 12 cases, transthoracic and transesophageal, for analysis of LV architectonics.

Results: LV thrombosis was present in 56% of DCM cases, all of them in the apex. Study of LV architectonics showed dilatation of LV in DCM group, 25% more pronounced in the apex than in the mediodiastinal area, (p < 0.001). Doppler mapping of flow velocities showed a decrease of diastolic velocity from basis to apex with 0.48 m/sec (avg) in pts. with DCM and 0.25 m/sec (avg) in control group (p = 0.001). In DCM group, this velocity decrease was 2.2 times more pronounced in the apical half of the LV (0.33 m/sec) than in the basal half (0.15 m/sec), while in control group this decrease was uniformly distributed (0.13 m/sec vs 0.12 m/sec). Time duration of flow (on Doppler wave) increased from basis to apex (with +0.25 msec avg) in group A (p = 0.007) while in group B it decreased from basis to apex (with -0.25 msec avg) (p = 0.007). 3D echocardiography showed in all the 12 cases modifications of LV architectonics, with a relative "narrowing" in the mediocentral area, 31% more pronounced than in the control lot. Contrast echo showed a longer persistence of flow and turbulent flow in the apex in all DCM cases.

Conclusions: In DCM, LV's shape and architecture presents significant perturbations, demonstrated with 3D echo, which favor a turbulent flow in the dilated apex, leading to development of thrombi especially in this area. Doppler mapping of flow velocities in the apex shows progressive decrease of flow velocity from basis to apex, more pronounced in the apical part of the LV, creating proper conditions for apical thrombosis in DCM.

322

Influence of aetiology on long-term survival in patients with chronic heart failure.

R.S. Sharma, R.T. Murphy, J. Gimeno Banes, P.M. Elliott, W.J. McKenna, D. Pellerin. The Heart Hospital, London, United Kingdom

Aetiology of ischemic heart disease has been shown to be associated with worse prognosis than idiopathic aetiology in patients with chronic heart failure. Other reports showed that survival was worse for idiopathic dilated cardiomyopathy or was unrelated to aetiology. Due to these conflicting results, large therapeutic multicentre trials included patients regardless of aetiology. We hypothesized that aetiology of ischemic heart disease was not an independent predictor of mortality in patients with severe chronic heart failure in this prospective study.

Methods: Thirty-six patients with DCM - group A, and a control lot of 25 healthy subjects - group B. Ventricular shape and geometry were evaluated using B-mode echo. Doppler mapping of blood flow velocity in the LV was performed at different sites, along 3 longitudinal axes at 3 levels: basal, mediocentral and apical. Three-dimensional echocardiography (Sonos 5.500 - Agilent Technologies) was performed in 12 cases, transthoracic and transesophageal, for analysis of LV architectonics.

Results: LV thrombosis was present in 56% of DCM cases, all of them in the apex. Study of LV architectonics showed dilatation of LV in DCM group, 25% more pronounced in the apex than in the mediodiastinal area, (p < 0.001). Doppler mapping of flow velocities showed a decrease of diastolic velocity from basis to apex with 0.48 m/sec (avg) in pts. with DCM and 0.25 m/sec (avg) in control group (p = 0.001). In DCM group, this velocity decrease was 2.2 times more pronounced in the apical half of the LV (0.33 m/sec) than in the basal half (0.15 m/sec), while in control group this decrease was uniformly distributed (0.13 m/sec vs 0.12 m/sec). Time duration of flow (on Doppler wave) increased from basis to apex (with +0.25 msec avg) in group A (p = 0.007) while in group B it decreased from basis to apex (with -0.25 msec avg) (p = 0.007). 3D echocardiography showed in all the 12 cases modifications of LV architectonics, with a relative "narrowing" in the mediocentral area, 31% more pronounced than in the control lot. Contrast echo showed a longer persistence of flow and turbulent flow in the apex in all DCM cases.

Conclusions: In DCM, LV’s shape and architecture presents significant perturbations, demonstrated with 3D echo, which favor a turbulent flow in the dilated apex, leading to development of thrombi especially in this area. Doppler mapping of flow velocities in the apex shows progressive decrease of flow velocity from basis to apex, more pronounced in the apical part of the LV, creating proper conditions for apical thrombosis in DCM.

323

Assessment of mitral annulus dilatation in patients with primary dilated cardiomyopathy before and after posterior semicircular reductive annuloplasty.

V. Torbic1, M. Kovac2, D. Zecovic1, B. Mihajlovic1, Z. Potic1, N. Radovanovic1, 1Institute of CVD, Clinic For Cardiovascular Surgery, Sremka Kamenica, Yugoslavia; 2Institute for CVD, Clinic of cardiology, Sremka Kamenica, Yugoslavia

Mitral regurgitation (MR) is one of the most common independent factors causing heart failure in patients with primary dilated cardiomyopathy (PDMC). The main cause of MR in PDMC is mitral annulus dilatation. Purpose: The aim of the study is to compare changes in mitral annular area (MAA), changes in index of annular dilatation (IAD), changes in degree of MR before and after posterior semicircular mitral annuloplasty.

Material and Methods: Twenty patients (9 male and 11 female, mean age 31) with PDMC were included in the study. The following parameters were analyzed using TEE: mitral annulus diameter in systole (MADs), mitral annulus diameter in diastole (MADD), mitral annulus area in diastole (MAA), lengths of anterior mitral leaflet in diastole (LAMLD), and patients with heart diseases who had no CHF (III group). Left ventricular cavitation were considered as deaths (n=43), there was no significant difference in total points from the thoracic wall and the heart failure NYHA class (r=0.56), left ventricular ejection fraction (EF), time duration of flow (on Doppler wave) increased from basis to apex (with +0.25 msec avg) in group A (p = 0.007) while in group B it decreased from basis to apex (with -0.25 msec avg) (p = 0.007). 3D echocardiography showed in all the 12 cases modifications of LV architectonics, with a relative "narrowing" in the mediocentral area, 31% more pronounced than in the control lot. Contrast echo showed a longer persistence of flow and turbulent flow in the apex in all DCM cases.

Conclusions: In DCM, LV’s shape and architecture presents significant perturbations, demonstrated with 3D echo, which favor a turbulent flow in the dilated apex, leading to development of thrombi especially in this area. Doppler mapping of flow velocities in the apex shows progressive decrease of flow velocity from basis to apex, more pronounced in the apical part of the LV, creating proper conditions for apical thrombosis in DCM.

324

Thoracic ultrasonography in differentiating dyspnoea in patients with left failure.

M. Tsevareva, D. Tsevareva. Tbilisi Medical Academy, Tbilisi, Georgia

Background: Optimal management of CHF requires monitoring of the symptoms of congestion. Pulmonary congestion (PC) is a useful marker of CHF. The diagnosis of PC is confirmed by clinical and X-ray examination. The mean sign of PC – dyspnoea, is not specific and can be caused by pulmonary diseases. Thoracic US is very sensitive and specific in detection of fluid in pleural space. However, US is not recognized as the leading method of examination of respiratory system. The fluid amount in lung is increased by PC and it changes the sonographic characteristics of lung.

Objective: The aim of this study was to find the US signs of PC.

Methods: We studied 169 patients with different grade CHF and X-ray signs of PC (I group), 30 patients with dyspnea caused by exacerbation of chronic obstructive bronchitis, bronchial asthma or emphysema (II group) and 80 normal persons and patients with heart diseases who had no CHF (III group). Left ventricular cavity size and EF% was determined by 2D-EchoCG, pulmonary artery pressure – by Dopplerographic evaluation of tricuspid or pulmonary regurgitation flow. Sonographic evaluation of a lung was done in horizontal and vertical positions of patient, from 12 points on thoracic wall, which corresponded to the projection of lower, middle and upper lobes of a right lung and upper and lower lobes of left lung.

Conclusions: (1) Thoracic US is sensitive and accurate method for evaluation of PC in patients with CHF and in differentiating dyspnoea induced by CHF from dyspnoea induced by respiratory diseases. (2) The US sign of PC in HF is a "C comet tail Phenomenon", which is protracted, prominent, multiple and registered from larger area of thoracic wall (5 positions or more).