Role of Doppler tissue imaging in the assessment of diastolic dysfunction in hypertensive patients with and without concentric geometric remodeling.

M.V. Pitzalis, R. Romito, M. Iacovelli, K. Lucarelli, P. Guida, B. Rizzon, C. Forleo, P. Rizzon. Instituto di Cardiologia, Bari, Italy

It has been shown that in patients with essential hypertension and cardiac hypertrophy, there are differences in diastolic function evaluated by using TDI or TD.

We studied 17 patients (46±9 years, 11 male) with untreated essential hypertension. Echocardiographic evaluation was used to assess the following parameters: concentric remodeling (CR) pattern, defined as a normal left ventricular mass index with a relative wall thickness >0.45; global diastolic dysfunction (GDD), detected by correcting for age the TD flow early to atrial (E/A) ratio values; regional diastolic dysfunction (RDD) evaluated by TDI, with the sample volume positioned within the basal septum; tissue Doppler imaging (TDI) with negative predictive values (NPV). CR was found in the absence of CR, no patient showed either GDD or RDD. At Fisher test analysis, CR was significantly associated with the presence of CR (p<0.01), whereas no significant association was found between CR and GDD. TDI showed a higher sensitivity in detecting diastolic dysfunction, thus suggesting that TDI is able to detect early impairment of diastolic function more accurately than pulsed transmitral Doppler even in the absence of cardiac hypertrophy.

Arterial distensibility and ambulatory blood pressure as determinant of left ventricular hypertrophy and intima-media thickness in elderly subjects.

L.S. Costa, J.C. Tress, E.C. Zilli, J.V. Libonato, R. Pozzan, A. Brandão, C. Drumond Neto, A.P. Brandão, 1Santa Casa da Misericórdia Hospital, Cardiology department, Rio de Janeiro, Brazil; 2Niterói Hospital, Cardiology, Rio de Janeiro, Brazil; 3Santa Casa da Misericordia, Cardiology, Rio de Janeiro, Brazil

In conclusion, in hypertensive patients with cardiac remodeling an abnormal TDI (75% vs 33%) and a higher negative predictive value (63% vs 38%); both TDI CR and GDD. TDI showed a higher sensitivity in detecting diastolic dysfunction than pulsed transmitral Doppler.

By investigating the TOD determinants, we verified that the 24h systolic BP was more accurately than pulsed transmitral Doppler.

Incremental value of a complete echocardiogram to detect left ventricular dysfunction in hypertensive patients with left ventricular growth.

A. Díaz, D. Marín-Raymond, J. Barba, L. Tomas, M. Serrano, J. Diez. 1Clinica Universitaria de Navarra, Cardiology, Pamplona, Spain; 2Hospital de Navarra, General Medicine, Pamplona, Spain

Left ventricular growth is a major risk factor of cardiac dysfunction in hypertensive patients. Although echocardiography allows the study and quantification of ventricular dimensions, mass and systolic and diastolic function, not all the parameters that can be assessed are measured routinely. In this study we investigate whether a complete echocardiographic study allows to identify subtle functional alterations in the left ventricular hypertrophic. We studied 101 patients newly diagnosed of essential hypertension. None of the patients exhibited past or current medical history of cardiac disease or cardiac failure. Office blood pressure measurements was taken and 2-Dimensional and M-mode Doppler ultrasound recordings were performed. The following parameters were measured in the echocardiogram: left ventricular mass index (LVMI), relative wall thickness (RWT), ejection fraction (EF), subendocardial fractional shortening (SFS), and midwall fractional shortening (MFS). Systolic blood pressure (SBP) in the 2 hypertensive groups (p<0.05), the latest showing, however, higher statistical values when compared to the normotensive group (p<0.001). The variables with positive correlation to the LVMI were: 24hB systolic, diastolic and pulse pressure; daytime systolic BP; SBP-time systolic and diastolic BP and PWV; and the variable with negative correlation was the systolic-nocturnal fall. The 24h systolic BP and pulse pressure, daytime systolic and diastolic BP and PWV were significant as positive correlates to the IMT-CCA, while the systolic-nocturnal fall and diastolic-nocturnal fall appeared as negative correlations for IMT-CCA. By investigating the TOD determinants, we verified that the 24h systolic BP was the only variable associated to the LVMI (p=0.0161), while the PWV was the only associated to the IMT-CCA (p=0.033). Thus, we demonstrated that the analysis of these ABP and PWV variables is a resource of great validity for the investigation of the target organ in elderly subjects.