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LEFT ATRIAL REMODELING AFTER SHORT DURATION ATRIAL FIBRILLATION IN HYPERTROPHIC HEARTS
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Background: The aim of the study was to evaluate the Left Atrial (LA) contribution to left ventricular (LV) filling after short duration episode of atrial fibrillation in hypertrophic hearts.

Methods: We selected 60 patients (pts) with a first diagnosis of hypertensive who had a moderate LV hypertrophy. Pts were hospitalized because of an episode of atrial fibrillation (AF) cardioverted within 48 hours of the onset of AF. Pts population included 47 men and 13 women with a mean age of 54 + 9 years. Pts were compared with a control population of 60 pts cardioverted because of Lone AF without cardiac hypertrophy (mean age 57 + 10 yrs). Atrial function and size were assessed by Doppler echocardiography and the following parameters were measured: transmirtal peak A velocity, atrial filling fraction, atrial ejection force, peak E velocity, deceleration time and Isolumic relaxation time (IVRT). LA maximal (LA max vol) and minimal volume (LA min vol), LV cardiac mass index (LVM). 

Results: Diastolic function was impaired in the study group: peak E velocity was 0.48 + 0.09 m/sec vs control 0.76 + 0.10 m/sec, peak A velocity was 0.79 + 0.12 m/sec vs control 0.54 + 0.11 m/sec, dec t was 278 < 47 vs control 200 + 34, IVRT was 110 + 14 vs control 87 + 11. All pts had an increased LVM (275 + 46 vs control 112 + 40 g/m2;p < 0.001), AEF increased significantly with age in normal subjects (r=0.9p < 0.01) and was strongly related to peak A velocity. In hypertensive patients, the relation of AEF with age was weak (r=0.42, p < 0.05), the values were significantly higher than in normal subjects. A strong relation was reported between LA and LVM and the other atrial function parameters. LA size was reduced in Hypertensive pts after cardioversion. LA max vol decrease from 30 + 8 to 25 + 6 cm3, LA min vol decrease from 18 + 5 to 12 + 6 cm3. A relationship between LA max and min vol and atrial ejection force was observed in hypertensive pts (r=-0.79, p<0.01 and r=-0.68, p<0.05).

Conclusions: Atrial hypertrophy after short duration episodes of AF in hypertensive patients may be due to an increase in collagen synthesis, possibly associated to an inadequate degradation. Diastolic filling abnormalities may be associated with a decreased metalloprotease activity.

Key Words: collagen turnover markers, left ventricle

OR-8
LEFT VENTRICULAR MASS AND FUNCTION ARE RELATED TO COLLAGEN TURNOVER MARKERS IN ESSENTIAL HYPERTENSION
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We investigated whether extracellular matrix components circulating levels and metalloproteases serum concentrations may be related to left ventricular (LV) structural and functional parameters. In 76 never treated subjects (44 ± 4 yrs) of the randomized sample of population participating into the Vobarno study LV mass (LVM g), relative wall thickness (RWT), midwall fractional shortening (midFS), E and A wave transmirtal flow velocities and their ratio (Ev, Av, E/A) were measured by doppler echocardiography; clinic and 24 hours monitored BP were also measured. In all subjects markers of collagen I and III synthesis (procollagen type-I propeptide, PIP and procollagen type-III propeptide, PIIINP), and collagen type-I degradation (collagen type-I telopeptide, CITP), their ratio were measured and Metalloproteases 1, 2, and 9 were determined by ELISA. No significant differences in PIP, CITP, their ratio, PIIINP, and Metalloproteases 1, 2, and 9 were observed between normotensive (n=43) and hypertensive (n=33) subjects. In hypertensives a significant correlation was observed between LVM and PIP (r = 0.41, p = 0.012) and PIP/CITP ratio (r=0.26, p = 0.01) and MMP2 (r = 0.20, p = 0.02). Midwall fractional shortening was inversely related to PIP (r = -0.50, p = 0.002) and PIP/CITP (r = -0.46, p = 0.01). A significant correlation was observed between E/A ratio and MMP-2 serum concentration. These findings suggest that in hypertensive patients LV mass increase and reduced systolic performance may be, at least in part, due to an increase in collagen synthesis, possibly associated to an inadequate degradation. Diastolic filling abnormalities may be associated with a decreased metalloprotease activity.

Key Words: left atrial function, hypertrophy, atrial fibrillation