

The relationship between cardiovascular risk factors and left ventricular diastolic dysfunction

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Diastolic dysfunction is present in all patients with systolic heart failure, and about 50 % of patients with heart failure have isolated diastolic dysfunction. Until the prognostic factors and the treatment of systolic heart failure are well defined, the prognosis and the treatment of isolated diastolic heart failure are controversial. The aim of our study is to compare the clinical and paraclinical (mostly echocardiographic) features of our patients admitted with heart failure.

Our study includes 421 patients discharged between august 2009 and august 2011. 289 patients with isolated diastolic dysfunction (group A), and 132 patients with systolic dysfunction (group B) underwent complete clinical and paraclinical evaluation.

The mean age in group A was 64 years, and in group B was 66 years ($p = 0.002$). The female/male ratio was 3/1 in group A, and 1/3 in group B ($p = 0.005$). 74 % of patients in group A presented hypertension, in group B the most common risk factor was ischemic heart disease (57 %). We observed the aggregation of the cardiovascular risk factors in group A: more than 1 risk factor was present in 178 patients in group A, and in 35 patients in group B ($p=0.0001$). Severe diastolic dysfunction was present in 23% of patients in group A, meanwhile 50 % of patients in group B presented with this filling pattern. 60 % of the patients in group A were oligosymptomatic, 45 % of the patients in group B had severe decompensation ($p = 0.001$). The mean of the left ventricular mass was 175 g in women (cut off 145g), and 211 g in the male group (cut off 208 g). The mean of the left ventricular thickness index was 0.45, this value was

0.47 in diabetic hypertensive patients, and 0.44 in absence of this two risk factors ($p = 0.26$). Normal left ventricular geometry was present in 17 women and 37 men, concentric LV remodeling was found in 17 female and 45 man, concentric hypertrophy in 58 female and 47 man, and eccentric hypertrophy in 27 female and 23 man ($p=0.005$). The left atrial diameter was 40 mm in group A, and 46 mm in group B ($p = 0.001$). The severe symptomatic heart failure was present in 108 patients in group A, in also 108 patients in group B ($p=0.0001$, $RR=3.4$). Left ventricular hypertrophy was present in 72 symptomatic females, meanwhile 18 female had asymptomatic left ventricular hypertrophy ($p=0.0001$, $RR = 3$). 62 men with LV hypertrophy presented symptomatic heart failure, and 15 had no symptoms ($p=0.006$, $RR = 2.3$). The most frequent complication in both groups was mitral insufficiency (63 versus 93 %), pulmonary hypertension (26 versus 59%), and atrial fibrillation (20 versus 31%, $p = 0.21$). Significant mitral insufficiency was present in 50 % of patients in group A, and in 82 % of patients in group B ($p=0.004$). The most strong correlation was found between the dilatation of left atrial diameter, and the left ventricular end diastolic diameter ($p= 0.001$, $r = 0.4$).

Our conclusions are the follows: Advanced age was frequent in both groups. Isolated diastolic dysfunction was more frequent in women. Severe diastolic dysfunction is a common finding in patients with systolic heart failure. Left ventricular remodeling is present in diabetic and hypertensive patients. There was found aggregations of risk factors in group A. Advanced NYHA classes are more common associated with systolic heart failure. Left ventricular hypertrophy is frequent associated with severe heart failure in both genders. The left atrial diameter is greater when systolic dysfunction was present. Atrial fibrillation, pulmonary hypertension is more frequent in group B. Mitral insufficiency was a common finding in both groups, but severe mitral regurgitation was more frequent in group B.