

elevated BNP was defined as a concentration above the upper 95th percentile of a normal range established from a local healthy population.

RESULTS: Of the 147 patients who had clinical evidence of heart failure and both TTE and BNP results were available, 62% had preserved LV systolic function. 62% of this group were female (mean age 75 years). The median (range) BNP in patients with reduced LV systolic function was 589 pg/ml (12-3117) compared to 190 pg/ml (1-2785) in patients with preserved LV systolic function (p<0.0001). 71% of patients with preserved LV systolic function had an elevated plasma BNP concentration. However, 43% of this group also had valve disease or atrial fibrillation. Overall, 41% of patients with clinical heart failure and preserved LV systolic function had an elevated plasma BNP concentration and no valve disease or atrial fibrillation.

CONCLUSION: Of all the patients fulfilling standard diagnostic criteria for heart failure and who had preserved LV systolic function, 41% had biochemical evidence of LV compromise and did not have valve disease or atrial fibrillation.

11:15 a.m.

887-4 Patients With the Metabolic Syndrome Have a High Prevalence of Left Ventricular Diastolic Dysfunction

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Background: Previous studies have shown the utility of transmitral pulse-wave Doppler-derived (PWD) indices for the detection of left ventricular diastolic dysfunction. Tissue Doppler imaging (TDI) is a relatively load-independent method used to assess abnormal LV relaxation. The prevalence of diastolic dysfunction in the metabolic syndrome has not been well evaluated.

Methods: 94 subjects were evaluated for variables of metabolic syndrome: 1) waist circumference > 102 cm in men or > 88 cm in women; 2) triglycerides ≥ 150 mg/dl; 3) HDL < 40 mg/dl in men or < 50 mg/dl in women; 4) diabetes or fasting blood glucose ≥ 110 mg/dl; 5) history of hypertension or BP ≥ 130/85. 22 subjects (age:43±9, 59% female) met none (Group 1), 53 (age:48±14, 47% female) met 1-2 (Group 2) and 19 (age:59±8, 51% female) met ≥ 3 criteria of metabolic syndrome (Group 3). Echocardiographic examination included measurements of ejection fraction (LVEF), LV mass index (LVMI), PWD transmitral early and late filling velocities (E and A), deceleration time (DT) and TDI-derived early myocardial velocity at the septal mitral annulus (Em). Based on PWD, normal diastolic filling (NF) was defined as E/A ≥ 1 and DT = 170-230 ms; impaired relaxation (IR) as E/A < 1 and DT > 230 ms; pseudonormalized filling (PN) as E/A ≥ 1 and DT < 170 ms; and restrictive filling (RF) as E/A ≥ 2 and DT < 170 ms. A TDI-derived Em ≤ 8 cm/s identified abnormal relaxation.

Results: All subjects had normal EF (64 ± 8%). 26 subjects had LVH: 4 (19%) in Group 1, 13 (25%) in Group 2 and 9 (47%) in Group 3. Among subjects unclassifiable by PWD criteria (n = 21, 22%), TDI allowed reclassification of 16 patients as NF and 5 as IR. Among those with discordant classification (n = 19, 20%), 3 patients identified as NF by PWD had IR by TDI, and 16 patients with abnormal diastolic filling [IR (4 patients), PN (7 patients) or RF (5 patients)] by PWD were normal by TDI. Using TDI criteria, the prevalence of diastolic dysfunction was 5% in Group 1, 21% in Group 2 and 37% in Group 3.

Conclusions: Patients with metabolic syndrome have a high prevalence of abnormalities in LV diastolic function. This finding may have important implications in long-term cardiovascular morbidity and mortality.

11:30 a.m.

887-5 Diastolic Heart Failure in Patients Hospitalized With Symptomatic Cerebral and Peripheral Vascular Disease

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Background: Patients with Stroke, TIA and claudication are at an increased risk for morbidity and mortality from systolic heart failure (CHF) and ischaemic heart disease. We have previously reported five times more CHF in these patients compared with the general population. Heart failure with preserved LV function/ diastolic heart failure (DHF) is associated with increased morbidity and hospitalizations in the general population at a rate similar to that seen in CHF. However, the prevalence of diastolic heart failure (DHF) in patients presenting with acute cerebral and peripheral vascular syndromes is unknown.

Methods: Two hundred and twenty-one prospective consecutive patients presenting with their first stroke, TIA or new onset of claudication underwent history, exam, ECG and echocardiography. Diastolic heart failure (DHF) was defined as EF≥45% + Framingham signs and symptoms of heart failure. Asymptomatic LV systolic dysfunction (aLVSD) was defined as an EF<45%.

Results:

Clinical variables	Normal LV (n=83)	Diastolic HF (n=32)	Systolic HF (n= 34)	aLVSD (n=72)
Mean age (years)	68	71	69	65
Female gender (%)	52 (63)	16 (50)	13 (38)	24 (33)
Stroke (%)	29 (35)	10 (31)	12 (35)	23 (31)
TIA	24 (30)	10 (31)	14 (41)	26 (38)
PVD	29 (35)	12 (38)	8 (24)	23 (31)
IHD/ MI (%)	6 (7)	15 (47)	18 (53)	20 (28)
Hypertension	46 (55)	20 (63)	16 (47)	27 (38)
Diabetes	8 (10)	5 (16)	4 (12)	9 (13)
Prior CABG	0 (0)	5 (16)	7 (21)	8 (11)
Smokers	68 (82)	27 (84)	29 (86)	50(69)
Hypercholesterol	10 (31)	10 (31)	17 (50)	33 (46)
Atrial fibrillation (%)	6 (7)	4 (13)	3 (8)	10 (14)

Conclusions: Diastolic heart failure is found in 15% of patients who present to hospital with acute vascular syndromes. It is equal in prevalence to systolic HF. Therefore, close to two-thirds of patients with symptomatic vascular disease have co-morbid heart failure. Patients with DHF tend to have a higher prevalence of PVD and less symptomatic cerebrovascular events compared with CHF patients despite being older and with more hypertension, diabetes and atrial fibrillation.

11:45 a.m.

887-6 Treatment With Inhibitors of Angiotensin-Converting Enzyme Improves the Prognosis of Congestive Heart Failure With Preserved Systolic Function

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Inhibitors of angiotensin-converting enzyme (ACE) improve the prognosis of congestive heart failure (CHF) involving systolic dysfunction (SD), but hitherto it has not been known whether the same is true for CHF without SD. This study compared the effects of ACE inhibitors on the survival of hospitalized CHF patients with and without SD. Among the patients hospitalized for CHF in the Cardiology Service of a tertiary hospital between 1991 and 2002, we studied the 958 (aged 69.7 ± 11.7 years) whose left ventricular systolic function had been evaluated echocardiographically during admission. Of these, 581 (60.6%) were men, 541 (56.5%) had arterial hypertension, 263 (27.5%) were diabetics, 398 (41.5%) were in NYHA class IV, 462(48.2%) had ischaemic cardiopathy (the most common aetiology), and 610 (63.7%) took ACE inhibitors following admission for CHF. Ejection fraction was < 50% in 572 (59.7%) and > 50% in 386 (40.3%). Survival curves show treatment with ACE inhibitors to have benefited both these groups to a statistically significant degree.

Conclusion: ACE inhibitors lengthen the lives of CHF patients whether or not they have systolic dysfunction.

