Both BNP and NT-proBNP were consensually higher in patients with more severe HF, with significant differences between NYHA class I and III, and between NYHA class II and III (NYHA class IV did not enter in the analysis, because there was only 1 patient). Even if EF was considered, both BNP and NT-proBNP significantly correlated with EF, with the highest values in patients with the worst left ventricular dysfunction (r=0.25, p<0.0001 between EF and NT-proBNP; r=0.11, p<0.05 between EF and BNP). Moreover, no differences were observed between two method of assessment of natriuretic peptides, with a significant correlation between BNP and NT-proBNP determination (r=0.71, p<0.0001).

In conclusion, either BNP or NT-proBNP can be considered comparable plasma biomarkers to identify and to stratify HF also in hypertensive patients.

Key Words: B-Type Natriuretic Peptide (BNP), N-Terminal proBNP (NT-proBNP), Heart Failure

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ASSESSMENT OF B-TYPE NATRIURETIC PEPTIDE (BNP) AND N-TERMINAL (NT)-PROBNP IN PATIENTS WITH HEART FAILURE OF HYPERTENSIVE OR NOT HYPERTENSIVE ORIGIN

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Circulating natriuretic peptides are plasma biomarkers for detecting heart failure and left ventricular dysfunction in different patient setting. HF can originate from different cardiovascular diseases, among which hypertension play an important role.

Aim of the present study was to assess circulating levels of B-type natriuretic peptide (BNP) and N-terminal proBNP (NT-proBNP) in HF patients of hypertensive (HBP) or not-hypertensive (no-HBP) cause.

We evaluated 59 consecutive patients (pts) with clinical or instrumental signs of HF (34 M, 25 F, mean age 74.7 years, range 54-87). Forty pts had a history of hypertension, and 19 did not have history of hypertension and had other cardiovascular diseases (ischaemic, valvular, idiopathic cardiomyopathy) as a cause of HF, without any significant differences in baseline characteristics between two groups. Twenty HBP and 12 non-HBP were in NYHA class I, 14 HBP and 6 no-HBP in NYHA class II, 5 HBP and 1 no-HBP in NYHA III, and only 1 HBP in NYHA IV.

BNP and NT-proBNP in HBP and no-HBP pts with heart failure

<table>
<thead>
<tr>
<th>NYHA class</th>
<th>BNP (pg/ml)</th>
<th>NT-proBNP (pg/ml)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>I (32 pts)</td>
<td>127 ± 70/938 ± 907*</td>
<td>94 ± 48/611 ± 466</td>
<td>ns</td>
</tr>
<tr>
<td>II (20 pts)</td>
<td>211 ± 70/1978 ± 1280*</td>
<td>218 ± 61/2871 ± 2514</td>
<td>ns</td>
</tr>
<tr>
<td>III (6 pts)</td>
<td>1585 ± 1492/8595 ± 6700</td>
<td>365/2836</td>
<td>ns</td>
</tr>
<tr>
<td>IV (1 pts)</td>
<td>706/10501</td>
<td>ns</td>
<td>ns</td>
</tr>
</tbody>
</table>

* p < 0.0001 vs NYHA III, no significant differences between NYHA I and II (NYHA IV did not enter in the analysis because it was represented by only one pts; comparison with NYHA III was not possible in no-HBP, as well as between NYHA III HBP and no-HBP because there was only one no-HBP in NYHA III)

The results are presented in the Table. No significant differences were observed between HBP and no-HBP as regard as circulating natriuretic peptide values, assessed either as BNP or NT-proBNP determination. Globally, there were significant differences between patients in NYHA class I and III, and between NYHA class II and III (p<0.0001). The same difference were observed in HBP, whilst this evaluation was not possible among no-HBP because there was only one pts in NYHA III.

In conclusion, measurement of natriuretic peptides well identifies and stratifies HF, in all its etiologies, but cannot discriminate among the different causes of HF itself.

Key Words: B-type Natriuretic Peptide (BNP), N-Terminal proBNP (NT-proBNP), Heart Failure

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CARDIOMYOCYTE APOPTOSIS AND SURVIVAL IN HYPERTENSIVE PATIENTS WITH CHRONIC HEART FAILURE

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We have hypothesized that stimulation of cardiomyocyte apoptosis in association with inhibition of cardiomyocyte survival pathways may play a role in the transition from compensated left ventricular hypertrophy (LVH) to chronic heart failure (CHF) in arterial hypertension. To test this hypothesis we have analyzed endomyocardial biopsies from 28 hypertensives with LVH and normal cardiac function (group 1) and 24 hypertensives with LVH and CHF (group 2). The presence of other cardiac diseases was excluded after complete medical work-up. Detection and quantification of cardiomyocyte apoptosis was made with the TUNEL technique, and results were confirmed with an immunohistochemical analysis of the active form of caspase-3. The expression of the survival receptor gp130 was analyzed by western blot. Cardiomyocyte apoptosis was increased (P<0.01) in group 2 patients compared with group 1 patients. Caspase-3 immunostaining was more marked (P<0.05) in sections from group 2 patients compared with sections from group 1 patients. The expression of gp130 was diminished (P<0.05) in group 2 patients compared with group 1 patients. An inverse correlation was found between the expression of gp130 and cardiomyocyte apoptosis (R = -0.582; P=0.037) in all patients. The density of cardiomyocytes was reduced (P<0.01) in group 2 patients compared with group 1 patients and an inverse correlation was found between cardiomyocyte apoptosis and the density of these cells (R = -0.628, P<0.001) in all patients. In addition, cardiomyocyte apoptosis was correlated directly with the left ventricular peak-systolic wall stress (R=0.403, P<0.005) and the left ventricular internal telediastolic diameter (R=0.576, P<0.001), and inversely with the ejection fraction (R=-0.581; P<0.001) in all patients. These data suggest that the stimulation of cardiomyocyte apoptosis in hypertensives with CHF may be due, at least partially, both to the activation of the apoptotic pathway by mechanical stress and to the inhibition of the gp130-dependent survival pathway. On the other hand, apoptosis may play a role in the loss of cardiomyocytes detected in these patients, which in turn, may be involved in the impairment of cardiac function and left ventricular remodeling that occurs in CHF.

Key Words: Cardiomyocyte Apoptosis, Heart Failure, Survival Pathways

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HYPERTENSIVE HEART FAILURE PATIENTS: PHARMACOLOGIC TREATMENT PATTERNS BY PRIMARY CARE PHYSICIANS IN VA AND NON-VA SETTINGS

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Hypertensive Heart Failure Patients: Pharmacologic Treatment Patterns by Primary Care Physicians in VA and Non-VA Settings. Brent M. Egan, Michael R. Zile, Jan N. Basile, Florence N. Hutchison. Department of Medicine, Veterans Affairs (VA) Hospital & Medical University of South Carolina, Charleston, South Carolina.

Hypertension (HT) is a common antecedent of heart failure (HF) and many patients remain hypertensive after developing HF. Several antihypertensive medications have proven benefits in HF patients including...