

THE EVOLUTION OF NT-PROBNP SERUM LEVEL IN PATIENTS WITH ISCHEMIC CARDIAC FAILURE WITH AND WITHOUT A.C.E.I. TREATMENT

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Abstract: Heart failure is more frequently seen in the aging population worldwide. Neglected, the disease has a severe prognosis. Non-invasive screening and less expensive methods are used to initiate an optimum treatment. NT-proBNP determination could be one of these methods. It is a peptide whose serum levels increases in direct proportion to the degree of heart failure.

Cuvinte cheie: insuficiența cardiacă, NT-proBNP, inhibitorii enzimei de conversie a angiotensinei

Rezumat: Insuficiența cardiacă este întâlnită tot mai frecvent la populația vârstnică în întreaga lume. Neglijată, această boală are un prognostic sever. Pentru inițierea unui tratament optim în timp util este necesară utilizarea unor metode de screening neinvazive și puțin costisitoare. Una din aceste metode ar putea fi și dozarea NT-proBNP, un peptid al cărui nivel seric crește direct proporțional cu gradul insuficienței cardiace.

INTRODUCTION

Diagnosis of heart failure in early stage is difficult to be determined because symptoms such as dyspnea, fatigue and edema are relatively nonspecific. Diagnosis becomes more difficult in the elderly or obese. Echocardiography is the most used method in establishing the diagnosis. Considering that it is a progressive disease, the earlier the diagnosis is established, the more are the complications and mortality reduced.

The clinical significance of natriuretic peptides has long been demonstrated. ANP (atrial natriuretic peptide) and BNP (brain natriuretic peptide) influence the body fluid and electrolyte balance through their natriuretic, diuretic and antagonists of the renin-angiotensin-aldosterone properties. Pro-BNP is secreted predominantly in the ventricle in response to the wall stress. It is cleaved into a biologically active form - BNP - and a piece off - NT-proBNP.

THE AIM OF THE STUDY

Heart failure is an important cause of morbidity and death worldwide. For this reason, it was felt the need to detect serum markers that correlate with a proper prognosis. The present study tries to highlight the importance of NT-proBNP in diagnosis, treatment and prognosis of heart failure.

MATERIAL AND METHOD

This study was performed consisting of 72 patients who have been subjected to laboratory investigations. More specifically, serum levels of NT-proBNP, an inactive form of type B natriuretic peptide were dosed. I achieved two dosage for each patient in the 72, one at admission and the second to control at 6 months.

Normal laboratory values: <239 pg / ml.

Criteria for inclusion in the study were patients with heart failure of ischemic cause. Because NT-proBNP levels may increase in renal failure, patients with elevated urea and creatinine have been excluded from the study.

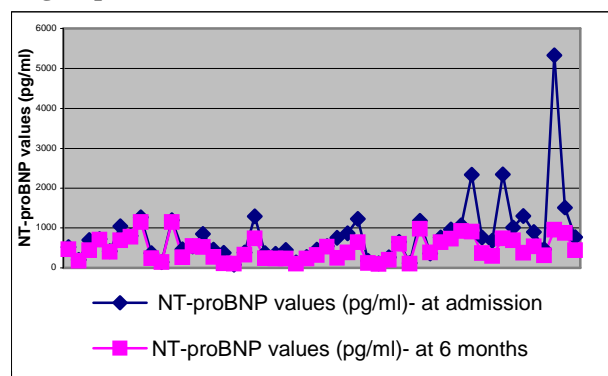
The 72 patients included in the study were grouped according to treatment compliance:

- Subgroup A: 50 patients who received treatment with diuretics and angiotensin converting enzyme;
 - Subgroup B: 22 patients receiving diuretic therapy only.
- As I mentioned and above, both subgroups were collected biological samples for pro-BNP at admission and at 6 months.

RESULTS

Initially, in subset A, patients who received ACE inhibitors, were only six patients with normal levels of NT-proBNP (<239 pg / ml). After six months of treatment with ACEI, 11 had normal levels of NT-proBNP. Otherwise, most others had lower values of serum marker ($p < 0.05$) compared to baseline.

Figure no. 1. NT-proBNP levels at patients in subgroup A, at admission and at 6 months



On the other hand, in subgroup B, the subgroup of patients who have not benefited from treatment with ACE inhibitors, the level of NT-proBNP increased after 6 months.

The 50 patients forming the subgroup A (patients who received ACE inhibitors) were subjected to echocardiography, mainly aiming to ejection fraction. Values considered pathological for the ejection fraction were below 50%.

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CLINICAL ASPECTS

Distribution of patients according to ejection fraction was as follows: 82% of patients had ejection fraction values below 50%, while the remaining 18% had normal recorded ejection fraction.

Figure no. 2. NT-proBNP levels at patients in subgroup B, at admission and at 6 months

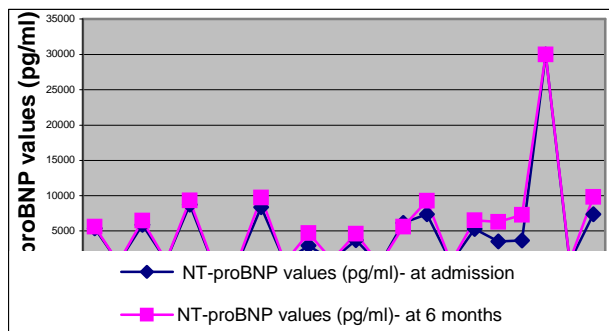


Figure no. 3. The distribution of patients based on the ejection fraction

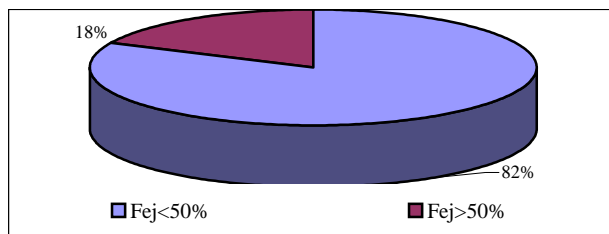


Figure no. 4. The relation established between the normal ejection fraction and NT-proBNP serum levels

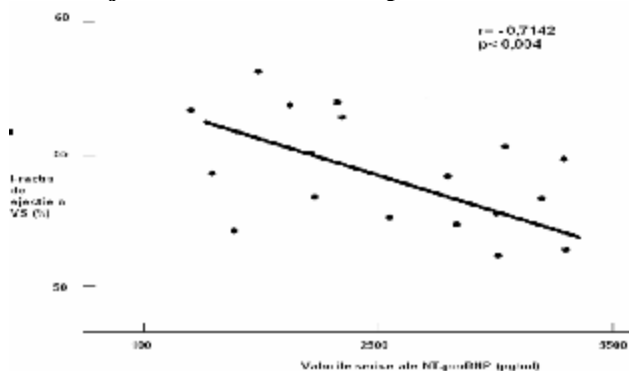
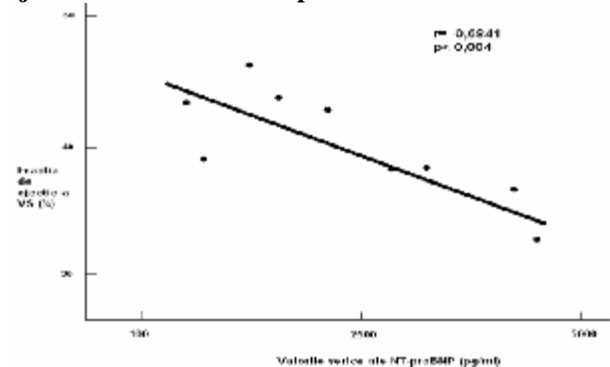


Figure no. 5. The relation established between the low ejection fraction and NT-proBNP serum levels



Between NT-proBNP serum and normal ejection fraction was found a significant correlation ($r = - 0.7142$, p

<0.004). Also between serum levels of NT-proBNP and low ejection fraction was found a correlation ($r = - 0.6841$, $p <0.004$).

CONCLUSIONS

1. NT-proBNP plasma level decreased significantly after 6 months of treatment with ACE inhibitors in patients with heart failure of ischemic cause.
2. Patients with heart failure secondary myocardial infarction, which followed only chronic treatment with diuretics without ACE inhibitors, had only a slight decrease or even standing of NT-proBNP serum.
3. Both low and normal values of ejection fraction is strongly correlated with serum NT-proBNP.
4. NT-proBNP may be an important marker for noninvasive assessment of left ventricular function in patients with heart failure of ischemic cause.

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