HIGH NT-PRO-BNP LEVELS ARE ASSOCIATED WITH CARDIAC STRUCTURAL CHANGES IN PATIENTS WITH NEPHROTIC SYNDROME

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Introduction and Aims: NT-pro-BNP is a pro-hormone secreted by the left atrium in presence of fluid retention. Our purpose was to evaluate NT-pro-BNP levels in patients with nephrotic syndrome and to determine its potential correlation with cardiac structural changes or dysfunction.

Methods: We consecutively studied 62 patients hospitalized in 2013-2015 for nephrotic syndrome. All patients underwent clinical examination and abdominal ultrasound in addition to echocardiographic assessment. NT-pro-BNP levels were determined by available commercial kit. Further, as controls, we included 21 non-nephrotic patients. All data are shown as mean ± SD or percentages. Non-parametric tests were used for comparison among groups.

Results: In patients with nephrotic syndrome (mean age 45 ± 16; male 72 %;) ascites was present in 11 cases (17.7 %). Median plasma creatinin level was 104µmol/l. NT-pro-BNP levels were higher in ascitic nephrotic patients than non ascitic (403 vs. 113.5 pg/ml respectively) and controls (37 pg/ml). Cardiac function was assessed in all patients by echocardiography. In nephrotic patients, left ventricular ejection fraction was 54.5 ± 4.8 % as compared to controls 68.8 ± 4.2; left atrial volume (LAV) was 60.34 ± 25.7 ml as compared to controls 41.32 ± 12 ml. Left ventricular end diastolic volume (LVEDV) was higher in nephrotic patients 91.33 ± 30.3 than in controls 76.9 ± 26.8 ml. Furthermore, we found that NT-pro- BNP was significantly higher in nephrotic ascitic patients rather than nephrotic non-ascitic and controls (p = 0.0001). In addition, LAV (p = 0.0014) and LVEDV (p = 0.0156), were significantly related with NT-pro-BNP levels. By multivariate analysis atrial volumes, degree of proteinuria and ascites were independently associated with NT-pro-BNP values (p = 0.0001).

Conclusions: We show that high serum levels of NT-pro-BNP have been found in nephrotic syndrome. High NT-pro-BNP levels associated with increased LAV and LVEDV values seems to be the cardiac structural changes which characterize nephrotic syndrome.