

# IMPORTANCE OF INCREASED NTproBNP VALUES IN PREDIALYSIS CKD PATIENTS BEYOND CARDIOVASCULAR SIGNIFICANCE

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## INTRODUCTION

Increased values of NTproBNP are proven to be associated with cardiac failure both in nonCKD and CKD population. Relation between increased NTproBNP values and malnutrition in the absence of overt cardiac disease is less studied and reached the attention of nephrologists in the last years. We evaluated the relationship between NTproBNP values and markers of malnutrition in a cohort of predialysis CKD patients with no evidence of cardiac systolic dysfunction.

## METHODS

Following local protocol for follow-up, an echocardiography exam was performed in all patients presenting for the first time at nephrology ambulatory with CKD as part of initial global assessment of clinical and biological status. During 1 year, 85 predialysis CKD patients (stages 3-5) with normal left ventricle ejection fraction in echocardiography were included in the study and screened for NTproBNP values. Relationship between NTproBNP values and malnutrition markers as BMI, serum albumin, serum transferrin were recorded and statistically analyzed as primary objective; as second objective, relations between increased NTproBNP and several possible confounders as hemoglobin, high-sensitive C-reactive protein, eGFR (CKD-EPI), age, gender, and also primary kidney disease were also analyzed.

## RESULTS

Increased values of NTproBNP were found in 53 patients (62.36%). In univariate analysis, there was an inverse correlation between increased NTproBNP and BMI ( $p < 0.001$ ), serum albumin ( $p < 0.001$ ), serum transferrin ( $p < 0.001$ ), hemoglobin ( $p < 0.001$ ), and eGFR ( $p < 0.001$ ) and a direct correlation between increased NTproBNP and age ( $p < 0.001$ ), diabetes as primary kidney disease ( $p < 0.001$ ), and high-sensitive C-reactive protein ( $p < 0.001$ ). No relationship was found between NTproBNP values and gender. In multiple regression analysis, the direct relationship between increased NTproBNP and high-sensitive C-reactive protein and diabetes respectively and the inverse relationship between increased NTproBNP and serum albumin and serum transferrin respectively remained significantly ( $p < 0.001$ ).

## CONCLUSIONS

In predialysis CKD patients without systolic cardiac dysfunction, we found a significant correlation between increased NTproBNP values and malnutrition and also inflammation markers, not explained only by decreased renal clearance. This increase may be explained by augmentation of extracellular water production in malnourished patients with intensive catabolism. Further studies are needed to assess the potential value of NTproBNP as malnutrition marker in CKD patients.