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### N-terminal Pro-Brain Natriuretic Peptide as a Biomarker for a Significant Renal Artery Stenosis in Medically Refractory Hypertensive Patients

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#### Abstract

**Background:** Although RAS is a relatively uncommon cause of hypertension, it is the most common form of correctable hypertension. There are clinical clues to be gained in identifying the small subset of individuals in whom directed evaluation for RAS may be useful. But its diagnostic accuracy is still poor.

**Objective:** The aim of the present study is to determine the usefulness of N-terminal pro-brain natriuretic peptide (NT-pro BNP) levels in helping improved diagnostic accuracy of a significant renal artery stenosis (RAS) in medically refractory hypertensive patients.

**Material and Method:** The present study included 40 patients with medical refractory hypertension in whom RAS was suspected and who were undergoing magnetic resonance angiogram (MRA) of renal artery and/or renal angiogram. Twenty consecutive patients with a significant RAS by MRA or renal angiogram (RAS group) compared with 20 consecutive patients in whom RAS was suspected but whose MRA/renal angiogram was normal or non-significant (normal group). Baseline clinical characteristics, number of antihypertensive medications before the procedure and NT-pro BNP were obtained from both groups.

**Results:** Age, gender, glomerular filtration rate (GFR) and LV function did not differ significantly between the two groups. NTpro BNP level was significantly higher in RAS group (1,243 ng/ml, range 156-10,628 ng/ml) compared to normal group (129 ng/ml, range 61-3,457 ng/ml),  $p = 0.009$ . NT-proBNP level > 600 ng/ml has sensitivity and specificity of 80% and 95%, respectively, in diagnosis of significant RAS.

**Conclusion:** In medical refractory hypertensive patients, NT-pro BNP level increased in patients with significant RAS and was an aid in separating a significant RAS from non-significant/normal renal artery.

**Keywords:** Resistant hypertension, Renal artery stenosis, NT-proBNP

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