



## Cardiovascular Guest Editorial

# Is NT-proBNP a Valuable Marker for Risk Stratification in Hypertensive Patients?

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### Quick Response Code:



I would like to appraise and re enforce the salient features of the interesting and very relevant study “NT-PRO BNP LEVELS IN RELATION TO VARIOUS GRADES OF HYPERTENSION - AN OBSERVATIONAL STUDY “ published in the IJCDW. Globally, hypertension (HTN) is a major public health problem. HTN is found to be the 3<sup>rd</sup> most common cause of mortality and morbidity in the Southeast Asia region.<sup>[1]</sup> It is even more of a concern in India as only 12% of the population with HTN have their blood pressure under control.<sup>[2]</sup> HTN is one of the major factors for cardiovascular diseases such as coronary artery disease, heart failure, atrial fibrillation, and cerebrovascular accidents. The direct cardiac impact of high blood pressure on the heart can be detected by looking at ventricular hypertrophy. The pathophysiological alterations occurring due to ventricular hypertrophy and abnormal remodeling become the precursor for various cardiovascular diseases. Hence, the left ventricular hypertrophy (LVH) is considered to be a major predictor of cardiac events.

Commonly employed tests to detect LVH include electrocardiogram and echocardiography. Echocardiography is a cumbersome and time-consuming procedure if it is to be done in all hypertensive patients. To obviate this, various authors had tried to analyze the role N-terminal pro brain natriuretic peptide (NT-Pro BNP) in detecting cardiac damage or abnormal remodeling. NT-Pro BNP is a cardiac marker that is released from the ventricular myocardium in response to either pressure or volume overload of the ventricles.<sup>[3]</sup> NT-Pro BNP is a well-established diagnostic and prognostic marker in heart failure patients. It is less well-studied in HTN. A study by Paget *et al.*<sup>[4]</sup> studied 684 hypertensive patients prospectively with the baseline measurement of NT-Pro BNP levels. It was found that NT-pro BNP was an independent predictor for mortality among hypertensive patients and therefore should be considered as one of the parameters for risk stratification of hypertensive patients. A community-based follow-up study identified that the presence of raised NT-pro BNP level at the baseline was associated with high risk of cardiovascular events and mortality even after adjusting the conventional risk factors.<sup>[5]</sup>

In this study, the authors did an observational study to find the correlation of NT-proBNP among patients with various grades of HTN. A total of 100 consecutive hypertensive patients were enrolled. They were divided into three groups according to ACC/AHA 2017 guidelines of HTN. The patients with secondary HTN, acute coronary syndrome, significant coronary artery disease, LV systolic dysfunction (ejection fraction <50%), and heart failure were excluded from the study. Non-cardiac conditions associated with elevated levels of NT-proBNP such as acute and chronic renal failure and pulmonary diseases were also excluded from the study. The study population was also subdivided on the basis of average NT-proBNP level: Group 1: <60 pg/mL,

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Group 2: 61–130 pg/mL, and Group 3: >131 pg/ml. This study derived that as the NT-proBNP level increased, the proportion of patients with higher grades of HTN and higher severity of diastolic dysfunction increased too. Therefore, a higher level of NT-proBNP was correlating with abnormal cardiac remodeling, that is, LVH which is conventionally detected by either electrocardiogram or echocardiogram. This trial discussed the role of NT-proBNP in detecting the abnormal remodeling of the heart due to HTN which could be predictive of future cardiovascular events. This trial is limited by its observational design and small cohort size. In addition, this trial did not discuss the role of NT-proBNP on cardiovascular events.

Due to its ease of measurement, less time-consuming, relatively cheap, and widespread availability, it makes this test potentially valuable for risk stratification of hypertensive patients. A cost-effective analysis needs to be done before incorporating this test as routine in the evaluation of hypertensive patients. To further strengthen this, one needs to have a large population-based randomized and prospective trial to assess the impact of NT-proBNP-guided risk stratification of hypertensive patients for cardiovascular events.

## REFERENCES

1. Lim SS, Vos T, Flaxman AD, Danaei G, Shibuya K, Adair-Rohani H, *et al.* A comparative risk assessment of burden of disease and injury attributable to 67 risk factors and risk factor clusters in 21 regions, 1990-2010: A systematic analysis for the Global Burden of Disease Study 2010. *Lancet* 2012;380:2224-60.
2. Available from: <https://www.who.int/india/health-topics/hypertension> [Last accessed on 2022 Oct 17].
3. McCullough PA, Neyou A. Comprehensive review of the relative clinical utility of B-type natriuretic peptide and N-terminal pro-B-type natriuretic peptide assays in cardiovascular disease. *Open Heart Failure J* 2009;2:6-17.
4. Paget V, Legedz L, Gaudebout N, Girerd N, Bricca G, Milon H, *et al.* N-terminal pro-brain natriuretic peptide: A powerful predictor of mortality in hypertension. *Hypertension* 2011;57:702-9.
5. Wang TJ, Larson MG, Levy D, Benjamin EJ, Leip EP, Omland T, *et al.* Plasma natriuretic peptide levels and the risk of cardiovascular events and death. *N Engl J Med* 2004;350:655-63.

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