



# B-type Natriuretic Peptide

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## Abstract

Chronic kidney disease (CKD) is a type of kidney disease in which there is gradual loss of kidney function over a period of months or years. Leg swelling, feeling tired, vomiting, loss of appetite or confusion may develop. Complications may include heart disease, high blood pressure, bone disease, or anemia.

**Key Words:** B-type, Natriuretic, Peptide.

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## Background

Patients with chronic renal disease should be considered in the highest risk group for subsequent cardiovascular events. Cardiac failure is more common in chronic renal disease patients than in the general population, and is an independent predictor of death in chronic renal disease. [1-2]

For example, among patients treated by hemodialysis or peritoneal dialysis, the prevalence of coronary artery disease is approximately 40% and the prevalence of left ventricular hypertrophy is approximately 75%. [3]

Brain natriuretic peptide (BNP), also known as B-type natriuretic peptide, is a hormone secreted by cardiomyocytes in the heart ventricles in response to stretching caused by increased ventricular blood volume. BNP is named as such because it was originally identified in extracts of pig brain. [4]

The main clinical utility of BNP is that a normal level helps to rule out chronic heart failure in the emergency setting. An elevated BNP should never be used exclusively to "rule in" acute or chronic heart failure in the emergency setting due to lack of specificity. [5]

BNP can be used for screening and prognosis of heart failure. BNP is also typically increased in patients with left ventricular dysfunction, with or without symptoms (BNP accurately reflects current ventricular status, as its half-life is 20 minutes, as opposed to 1–2 hours for NT-proBNP). [6][7]

Most studies to date indicate that upward

adjustment of diagnostic cut points preserves the usefulness of both BNP and NT-proBNP in the CKD patient, with similar clinical performance of each biomarker. We review the role of natriuretic peptide in heart failure in the setting of chronic renal disease. [8]

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## Testing Procedures

Both BNP and NT-proBNP levels testing through standard blood draws. There are also point-of-care BNP assays, which take approximately fifteen minutes for results and are often useful in emergent settings.

## All Children will be Subjected to the Following

1. **Detailed Medical History:** about the diagnosis of chronic kidney disease, duration of illness and treatment regimen (type, dose and duration).

2. **Detailed medical Examination**

**A-General Examination:**This include vital signs (pulse, temperature, respiratory rate and blood pressure), measurements (weight, height or length) and presence or absence of oedema.

**B-Local Examination:**Inspection, palpation, percussion and auscultation. (abdominal)

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### 3. Investigations:

- A- Simple urine analysis.
- B- 24 hours protein in urine.
- C- Albumin / Creatine ratio (A/C ratio).
- D- Serum triglyceride and cholesterol.
- E- Complete blood count.
- F- Renal function tests (Blood Urea and serum creatine).
- G- Serum albumin.
- h- Serum BNP.
- i- Estimated GFR calculated from Schwartz formula.
- j- Echocardiography.

### References

- Liao MT, Sung CC, Hung KC, Wu CC, Lo L, Lu KC (2012). Insulin Resistance in Patients with Chronic Kidney Disease Journal of Biomedicine and Biotechnology; 2012: 1-5.
- Foley RN, Parfrey PS, Sarnak MJ (1998). Epidemiology of cardiovascular disease in chronic renal disease. Journal of the American Society of Nephrology JASN; 9 (12 Suppl): S16-23.
- Segall L, Nistor I, Covic A (2014). Heart Failure in Patients with Chronic Kidney Disease: A Systematic Integrative Review. Biomed Res Int., 2014: 937398.
- Potter LR, Yoder AR, Flora DR, Antos LK, Dickey DM (2009). Natriuretic peptides: their structures, receptors, physiologic functions and therapeutic applications. Handbook of Experimental Pharmacology. cGMP: Generators, Effectors and Therapeutic Implications. 191. Springer Berlin Heidelberg, 341-366.
- Maisel AS1, Krishnaswamy P, Nowak RM, McCord J, Hollander JE, Duc P, Omland T, Storrow AB, Abraham WT, Wu AH, Clopton P, Steg PG, Westheim A, Knudsen CW, Perez A, Kazanegra R, Herrmann HC, McCullough PA (2002). Rapid measurement of B-type natriuretic peptide in the emergency diagnosis of heart failure. N Engl J Med., 347 (3): 161-167.
- Bhalla V, Willis S, Maisel AS (2004). B-type natriuretic peptide: the level and the drug-partners in the diagnosis of heart failure. Congest Heart Fail; 10 (1 Suppl 1): 3-27.
- Atisha D, Bhalla MA, Morrison LK, Felicio L, Clopton P, Gardetto N, Kazanegra R, Chiu A, Maisel AS (2004). A prospective study in search of an optimal B-natriuretic peptide level to screen patients for cardiac dysfunction. Am. Heart J., 148 (3):518-23.
- Dhar S1, Pressman GS, Subramanian S, Kaul S, Gollamudi S, Bloom EJ, Figueredo VM (2009). Natriuretic peptides and heart failure in the patient with chronic kidney disease: a review of current evidence Postgrad Med J., 85(1004): 299-302.

