



Congestive Heart Failure Management & Risk Stratification of the Acute Coronary Syndrome Patient

Overview

Heart failure is a clinical syndrome manifested from multiple etiologies resulting in compromised cardiac contraction and diminished output. Nearly 5 million people in the US suffer from Congestive Heart Failure (CHF) and approximately 550,000 new cases present each year.¹ However, the vast majority of patients with symptomless left ventricular (LV) dysfunction remain undiagnosed.² The total cost to health care of managing heart-failure patients exceeds \$38 billion annually.³

Brain natriuretic peptide (BNP) is a neurohormone predominately produced in the left ventricle in response to pressure overload and volume expansion.^{4,5} BNP synthesis and secretion is a protective response that is up-regulated in patients with heart failure and/or renal failure, resulting in vasodilation and diuresis/natriuresis. Reduced vascular resistance is a result of antagonistic activity directed at the rennin-angiotensin-aldosterone system.⁶ Elevated BNP concentrations are also seen in hypertension, tachycardia, cardiomyopathy, myocardial infarction and mitral and aortic stenosis.⁷ BNP is cleared from the circulation by enzymatic degradation via neutral endopeptidase and by receptor-mediated endocytosis.⁸

Clinical Utility

- Detect asymptomatic CHF for earlier treatment and better patient outcomes⁹
- Objectively assess heart failure severity - correlating with New York Heart Association classification (NYHA)⁹
- Rule-out CHF with high negative predictive value in high-risk patients⁹
- Monitor therapy and disease progression of LV dysfunction^{9,10}
- Screen cardiac abnormalities regardless of etiology and degree of LV systolic dysfunction¹¹
- Predict 30-day and 10-month mortality after AMI and stratify risk across the spectrum of Acute Coronary Syndrome independent of troponin and EKG changes⁵

Ordering Information & Specimen Requirements

Test Code	Test Name	Specimen Requirements
7533	BNP EvaluatR™	0.5 ml EDTA Plasma (plastic tube). Separate plasma and freeze promptly in PET (plastic) tube. Ship on dry ice by overnight courier.
<i>Specify: "Send BNP EvaluatR™ to Specialty Laboratories"</i> <i>For immediate attention and sample pick-up, call 800-421-4449.</i>		

Related Tests

7530 Pro-BNP DetectR™ (Nt-pro-BNP 8-29)

7528 Pro-ANP DetectR™ (Nt-pro-ANP 1-98)

References

1. American Heart Association. 2000 Heart and Stroke Statistical Update. Available at: <http://www.Americanheart.org/statistics/07other.html>. Accessed November 30, 2000.
2. Gheorghiade M, Bonow RO, Goldman L, et al. Use of beta-blocker therapy for mild-to-moderate chronic heart failure. *Am J Med* 2001;110 (Suppl 7A).
3. O'Connell JB, Bristow MR. Economic impact of heart failure in the United States: time for a different approach. *J Heart Lung Transplant* 1994;13:S107-12.
4. Yoshimura M, Yasue H, Morita E, et al. Hemodynamic, renal, and hormonal responses to brain natriuretic peptide infusion in patients with congestive heart failure. *Circulation* 1991;84:1581-8.
5. de Lemos JA, Morrow DA, Bentley JH, et al. The prognostic value of B-type natriuretic peptide in patients with acute coronary syndromes. *N Engl J Med* 2001;345:1014-21.
6. Wilkins MR, Redondo J, Brown LA. The natriuretic-peptide family. *Lancet* 1997;349:1307-10.
7. Sagnella GA. Measurement and significance of circulating natriuretic peptides in cardiovascular disease. *Clin Sci (Lond)* 1998;95:519-29.
8. Davidson NC, Naas AA, Hanson JK, et al. Comparison of atrial natriuretic peptide, b-type natriuretic peptide and N-terminal proatrial natriuretic peptide as indicators of left ventricular systolic dysfunction. *Am J Cardiol* 1996;77:828-31.
9. Mair J, Friedl W, Thomas S, Puschendorf B. Natriuretic peptides in assessment of left-ventricular dysfunction. *Scand J Clin Lab Invest Suppl* 1999;230:132-42.
10. Kazanegra R, Cheng V, Garcia A, et al. A rapid test for B-type natriuretic peptide correlates with falling wedge pressures in patients treated for decompensated heart failure: a pilot study. *J Card Fail* 2001;7:21-9.
11. Nakamura M, Endo H, Nasu M, et al. Value of plasma B type natriuretic peptide measurement for heart disease screening in a Japanese population. *Heart* 2002;87:131-5.

**For additional information please call Client Services at 1-800-421-4449
or visit our Web site at www.specialtylabs.com**