

For The Use Of BNP To Diagnose Or Rule Out Congestive Heart Failure

- “BNP concentrations obtained from whole blood samples are useful in the diagnosis of CHF and staging the severity of the disease...BNP concentrations at the time of hospital discharge correlate to subsequent readmission and death. BNP concentrations also drop rapidly with effective CHF treatment...Finally, the role of BNP in the outpatient cardiac or primary care clinic may be critically important in referring patients for echocardiography, the titration of therapies, and to assess the state of neurohormonal compensation of the patient.”

Wieczorek SJ. et al. A rapid B-type natriuretic peptide assay accurately diagnoses left ventricular dysfunction and heart failure: A multicenter evaluation.

- “BNP is elevated in post-MI patients with impaired LV function ($EF < 40\%$)...in a general practice setting, plasma BNP had 97% sensitivity and 84% specificity for identifying heart failure accurately... In chronic heart failure BNP predicts mortality...ventricular dysfunction and survival after MI. Elevated BNP increases the risk of sudden death after MI...A high plasma BNP calls for further investigation; a normal or low BNP has excellent negative predictive value for heart failure...A normal BNP virtually excludes LVSD and hence heart failure; a high BNP concentration merely indicates the presence of cardiac disease and the need for an echocardiogram...BNP is a useful prognostic marker, especially in identifying high-risk heart failure patients and in asymptomatic left ventricular dysfunction after MI...In heart failure patients BNP is probably most useful as a marker of prognosis, to identify those at highest risk of mortality, recurrent hospitalization or further morbidity, so that they can be identified and treated as priority.”

Kelly R, Struthers AD. Are natriuretic peptides clinically useful as markers of heart failure? *Ann Clin Biochem* (2001;38:94-102)

- “...the signs and symptoms of CHF are nonspecific...it is difficult for clinicians to differentiate patients with CHF from those with other conditions such as pulmonary disease on the basis of routinely available laboratory tests...BNP levels by themselves were more accurate than any historical or physical findings or laboratory values in delineating the cause of dyspnea...BNP testing may be the biggest advancement in diagnosing heart failure since echocardiography...it clearly adds to any information the physician can gather through history, physical examination, chest x-ray, and ancillary testing. Its high sensitivity and negative predictive value make it a reliable test to rule out heart failure with a high degree of certainty...The higher the BNP value, the greater the specificity and positive predictive value...the degree of BNP elevation correlates to severity of heart failure and prognosis...[BNP] levels may ultimately be used to triage patients with CHF to the appropriate treatment setting and to guide therapy of CHF...”

Maisel A. B-Type Natriuretic Peptide Measurements in Diagnosing Congestive Heart Failure in the Dyspneic Emergency Department Patient. *Rev Cardiovascular Med* (2002;3(suppl 4):S10-S17)

- “For primary care physicians natriuretic peptide measurement is useful to decide which patient with suspected heart failure warrants further investigation, particularly when assessment of left ventricular function is not readily available. Natriuretic peptides have an excellent negative predictive value, particularly in high risk patients. An increase in BNP is serious enough to warrant follow-up examinations. For the cardiologists the natriuretic peptides are helpful for guidance of therapy and monitoring disease course in heart failure patients and for risk stratification in heart failure and myocardial infarction.”

Mair J. et al. The Impact of Cardiac Natriuretic Peptide Determination on the Diagnosis and Management of Heart Failure. *Clin Chem Lab Med* (2001;39(7):571-588)

- “Neurohumoral profiling may guide introduction of beta-blockade in heart failure...Death and heart failure were more frequent in patients with cardiac peptide levels above the group median who received placebo...BNP in particular is a powerful prognostic indicator. This may reflect the direct relation between ventricular wall stress and secretion of BNP..BNP and NE (norepinephrine) may usefully complement symptomatic status and/or left ventricular imaging as triggers for initiation of β -blocker therapy in heart failure.”

Richards AM. et al. Neurohumoral Prediction of Benefit From Carvedilol in Ischemic Left Ventricular Dysfunction. *Circulation* (1999;99:786-792)

- “Not only are plasma BNP and NE (norepinephrine) important predictors of heart failure M&M (mortality and morbidity), but changes in these neurohormones over time are associated with corresponding changes in M&M...These data, therefore, underscore the importance of including the measurement of neurohormones, especially of BNP in all patients, in future HF clinical trials.”

Anand IS. Changes in Brain Natriuretic Peptide and Norepinephrine Over Time and Mortality and Morbidity in the Valsartan Heart Failure Trial (Val-HeFT). *Circulation* (2003;107:1278-1283)

- “BNP was the best marker to detect patients with impaired LVEF compared to NT-proBNP..BNP had the best diagnostic performance to detect patients with either impaired LVEF or resting LVEF <40...However, NT-proBNP did not differ significantly from BNP.”

Hammerer-Lercher A. et al. Head-to-head comparison of N-terminal pro-brain natriuretic peptide, brain natriuretic peptide and N-terminal pro-atrial natriuretic peptide in diagnosing left ventricular dysfunction. *Clinica Chimica Acta* (2001;310:193-197)