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Technical Bulletin

PROBNP

B type natriuretic peptide (BNP) has proven clinically helpful in the diagnosis and management of congestive heart failure (CHF). B type peptide is secreted from heart muscle as a pre-pro peptide that is cleaved into two molecules: active BNP and inactive NT ProBNP (1). Assays for both are now commercially available. Studies have shown both assays show similar clinical performance in the diagnosis of congestive heart failure (2)(3). Prognostic information is also gained via these assays in acute coronary syndrome (3)(4)(5), and after myocardial infarction (6).

The Pathology Center will offer ProBNP effective June 17, 2003. The BNP test will not be available after this date.

Difference between BNP and ProBNP:

- BNP has a shorter half-life (20 minutes) than Pro BNP (60-120 minutes).
- BNP assay measures Natrecore (nesiritride) as BNP. ProBNP assay does not measure this medication.
- In contrast to BNP, ProBNP is eliminated primarily by renal excretion and renal function dependency. The interpretation and levels of both ProBNP and BNP (7) are affected by renal failure.
- The ProBNP has significantly improved assay precision. This means that patient results near decision thresholds are more likely to be clinically correctly classified with the more precise ProBNP assay.

Reference ranges for the ProBNP are: <125 pg/mL for patients younger than 75 years.
<450 pg/mL for patients 75 years old or older.
ProBNP correlates with the severity of heart failure.

The table describes the clinical performance of the assay in discriminating CHF patients from patients without CHF, utilizing these cutoffs (8).

NYHA Classification	Median ProBNP (pg/mL)
Control	55
Class I	341
Class II	951
Class III	1571
Class IV	1707

The specimen requirements for the ProBNP are one SST tube or 1 ml of heparinized plasma. The sample is stable 3 days at 2-8ºC.

Please contact Tom Williams, M.D., Medical Director or Stacey McManigal, M.D. at 354-4540 or Toll-Free at 1-888-432-8980 if there are any questions.

References

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(6) Nilsson JC, Groenning BA, Nielsen G, et al. Left ventricular remodeling in the first year after acute myocardial infarction and the predicative value of N-terminal pro brain natriuretic peptide. Am Heart J 2002; 143:696-702.
(7) Mccullough PA, DucP, Omland T, Nowak RM, et al. For the BNP Multinational Study Investigators. B-type natriuretic peptide predicts heart failure independent of real function in patients with acute dyspnea: an analysis from the breathing not properly multinational study, American Journal of Kidney Disease, March 2003.
(8) Data on file at Roche. Reference Group, 1411 individuals without CHF, including individuals with diabetes, hypertension, pulmonary disease, and renal insufficiency. Disease group, 721 patients diagnosed with CHF.

These and other articles are available for review at Methodist Pathology Center.