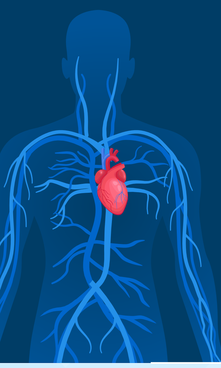
IFCC
International Federation of Clinical Chemistry and Laboratory Medicine

Recommendations of the IFCC (C-CB) Committee on

Natriuretic Peptides Testing



Natriuretic Peptides (NP) aid in the diagnosis of Heart Failure with a Class I Level of Evidence A in clinical practice guidelines. There are several B-type natriuretic peptide (BNP) and N-terminal pro-BNP (NT-proBNP), assays that are currently available globally for clinical and research use.

The IFCC Committee on Clinical Applications of Cardiac Bio-Markers (C-CB) has documented recommendations aimed at guiding clinicians on the appropriate use, interpretation, analytical performance, and gaps in clinical studies related to the use of natriuretic peptide (NP) assays with a focus on HF.

The Recommendations
suggested by IFCC (C-CB)

1 Using different NP assays in clinical practice is not recommended owing to the complex nature of NP processing and cleavage and differences in what assays measure.

The multiplicity of epitopes and lack of primary reference material may cause difficulty in harmonizing and standardizing various NP assays. Hence using single NP assay could help reduce extrapolation from one assay concentration to another.

2 NP assays require extensive characterization prior to implementation in clinical practice.

Ensure that the BNP and NT-proBNP assays have a consistency (in the analytical process, appropriate protocols in epitope recognition, cross-reactivity, analytical specificity and analytical sensitivity) that is followed for their interpretation and measurement.

3 Upper reference limits for NP assays should be stratified by age and sex.

Establishment of upper reference limits (URLs) stratified by age and sex is strongly recommended to help aid in determining optimal medical decision thresholds.

4 Harmonisation and standardisation of BNP and NT-proBNP is strongly recommended.

Efforts to standardise and harmonise NP assays should be undertaken. This will minimise clinical discordance when different NP assays are used.

5 Analytical imprecision of NP assays should be improved to allow for refinement of significant clinical changes.

The IFCC C-CB recommends a target CV of <10% to improve the analytical performance of NP assays to overcome errors of instrument and variability between reagent lots.

6 Additional studies evaluating NPs in diverse ethnic populations are required, especially with regard to target-derived cut-offs.

Additional studies are needed across a variety of heterogeneous racial cohorts.

7 Age-stratified cutoffs for BNP to rule in acute HF should be validated.

Prospective studies are needed for BNP, to derive and validate the usefulness of age-specific cut-offs.

8 A specific BNP/NT-proBNP biomarker-guided strategy cannot be recommended at this time.

Additional studies for derivation of the optimal biomarker treatment target, in practice are required.

9 Comorbidities that influence NPs must be addressed when interpreting NP test results and determining medical decision limits.

NP levels are increased in several comorbid conditions, including renal disease, sepsis, acute coronary syndrome, pulmonary hypertension, and pulmonary embolism. NP levels are decreased among patients with obesity, constrictive pericarditis, end-stage cardiomyopathy, and flash pulmonary edema.

10 Additional studies are required to validate recent data that suggest that both BNP and NT-proBNP retain their long-term prognostic utility in patients receiving therapy with NEP inhibitors.

- During treatment with NEP inhibitors, either BNP or NT-proBNP may be used to predict the risk of major adverse outcomes in patients with HFrEF.
- Measurement of NT-proBNP may cause less diagnostic confusion than measurement of BNP within 2–3 months of initiation of NEP inhibition.

Reference:

Kavsak PA, Lam CSP, Saenger AK, *et al.* Educational Recommendations on Selected Analytical and Clinical Aspects of Natriuretic Peptides with a Focus on Heart Failure: A Report from the IFCC Committee on Clinical Applications of Cardiac Bio-Markers. *Clin Chem.* 2019; 65(10):1221-1227.

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