USE OF NATRIURETIC PEPTIDES IN SUSPECTED ACUTE HEART FAILURE

Saiz LC[1], Gutiérrez-Valencia M[1], Erviti J[1] (2026). Use of natriuretic peptides in suspected acute heart failure. Improving Appropriateness of Clinical Practice (Vol 7, Report No 1). Government of Navarre, Spain. ISSN 2695-9135.

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ABSTRACT

Background: Brain natriuretic peptide (BNP) and N-terminal B-type natriuretic peptide (NT-proBNP) levels are recommended as biomarkers for the diagnosis, severity, and prognosis of heart failure (HF). Both are hormones that are produced and secreted, mainly in the ventricles, in response to increased tension in the heart wall, and elevated blood concentrations are observed in patients with HF, atrial fibrillation, renal dysfunction, advanced age, or acute inflammatory states. It has been stated that measuring these hormones could help confirm suspected HF in patients with acute symptoms.

Objective: to analyze and synthesize the evidence regarding the diagnostic value of BNP and NT-proBNP in the context of suspected acute heart failure.

Methods: in October 2025, a literature search was conducted in PubMed, Epistemonikos, and the website of the Health Technology Assessment agency, identifying studies related to the research question posed. Clinical practice guidelines, consensus documents, position statements, independent specialized publication reviews, and related reports previously published by other MAPAC committees were also searched.

Key points:

In the context of differential diagnosis in patients with suspected acute heart failure, BNP and NT-proBNP tests have proven useful, along with other analytical and clinical variables, in helping to rule out this diagnosis.

The scientific evidence identified consistently recommends thresholds of 100 pg/mL and 300 pg/mL for BNP and NT-proBNP, respectively, below which the negative predictive value of the test is high enough to rule out a diagnosis of acute heart failure. This good test performance has also been confirmed, in the case of NT-proBNP, for specific cases of elderly patients, patients with renal failure, and obese patients.

Direct comparison studies between BNP and NT-proBNP indicate that NT-proBNP is a more stable and versatile molecule (it can be measured in plasma and serum) than BNP.

The diagnostic accuracy of both parameters can be considered similar.

In 2023, a MAPAC hospital committee from Catalonia evaluated the use of NT-proBNP in the diagnosis and monitoring of heart failure. Its recommendations support its usefulness in ruling out this diagnosis, avoiding its measurement in admissions, decompensations or based on its presumed prognostic value, and advising against its serial estimation as a routine check-up. The update of the available evidence reaffirms the validity of the 2023 recommendations.

Proposal: In patients with suspected acute heart failure, a BNP concentration < 100 pg/mL or NT-proBNP concentration < 300 pg/mL has been shown to be equally capable of ruling out the diagnosis with a high degree of confidence and without significant differences in cost. However, the NT-proBNP parameter offers additional advantages such as greater stability, versatility in the type of sample (serum or plasma) and validated results in special populations. For all these reasons, whenever possible, it is recommended that NT-proBNP be prioritised as the test made available to healthcare professionals by the Navarre Health Service.

In terms of clinical implications, the main value of estimating the NT-proBNP parameter is in a scenario of uncertainty about the origin of the symptoms, mainly to rule out cardiac origin, and when knowing its level may influence clinical decisions. In particular, its use should be avoided in admissions or decompensations due to heart failure, and serial estimation is not required as a routine check-up.