

## Natriuretic Peptide Testing in the Emergency Department: Beneficial Effects on Diagnosis; Systematic Review with Meta-Analysis

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### ABSTRACT

Dyspnea is a frequent complaint in the emergency department (ED). Testing for amino-terminal pro-B-type natriuretic peptide (NT-proBNP) would increase diagnostic accuracy and decrease diagnostic uncertainty in patients with dyspnea. The current review aimed to assess the usefulness of systematic natriuretic peptide testing in the diagnosis of patients presenting with acute dyspnea in the ED. The literature search was performed between 2000 and 2024 throughout PubMed, MEDLINE, EMBASE, and Cochrane Central for eligible articles on natriuretic peptide (BNP) diagnostic accuracy. All clinical studies evaluating the diagnostic accuracy of BNP among patients with dyspnea were included. Only studies aged 18 or older were reviewed, with exclusions for incomplete records, case reports, languages, and samples other than blood. The present systematic review included 13 articles, encompassing 4524 patients. There were seven cross-sectional studies, and one diagnostic, retrospective, and randomized controlled trial, separately. The pooled sensitivity of serum BNP was 0.94 (95%CI; 0.94, 0.95) and the pooled specificity was 0.87 (95%CI; 0.86, 0.88). The pooled sensitivity of serum NT-proBNP was 0.94 (95%CI; 0.91, 0.96) and the pooled specificity was 0.85 (95%CI; 0.80, 0.88). The review reveals that BNP or NT-proBNP have high rule-out properties for dyspnea in ED cases, potentially adding benefits to CHF management.

*Keywords: BNP, B-type natriuretic peptide, NT-proBNP, apnea, dyspnea, diagnosis, accuracy*

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