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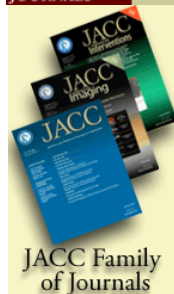
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CLINICAL RESEARCH: HEART FAILURE

Management of Chronic Heart Failure Guided by Individual N-Terminal Pro-B-Type Natriuretic Peptide Targets

Results of the PRIMA (Can PRO-brain-natriuretic peptide guided therapy of chronic heart failure IMprove heart fAilure morbidity and mortality?) Study

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Objectives: The purpose of this study was to assess whether management of heart failure (HF) guided by an individualized N-terminal pro-B-type natriuretic peptide (NT-proBNP) target would lead to improved outcome compared with HF management guided by clinical assessment alone.

Background: Natriuretic peptides may be attractive biomarkers to guide management of heart failure (HF) and help select patients in need of more aggressive therapy. The PRIMA (Can PRO-brain-natriuretic peptide guided therapy of chronic heart failure IMprove heart fAilure morbidity and mortality?) study is, to our knowledge, the first large, prospective randomized study to address whether management of HF guided by an individualized target NT-proBNP level improves outcome.

Methods: A total of 345 patients hospitalized for decompensated, symptomatic HF with elevated NT-proBNP levels at admission were included. After discharge, patients were randomized to either clinically-guided outpatient management (n = 171), or management guided by an individually set NT-proBNP (n = 174) defined by the lowest level at discharge or 2 weeks thereafter. The primary end point was defined as number of days alive outside the hospital after index admission.

Results: HF management guided by this individualized NT-proBNP target increased the use of HF medication (p = 0.006), and 64% of HF-related events were preceded by an increase in NT-proBNP. Nevertheless, HF management guided by this individualized NT-proBNP target did not significantly improve the primary end point (685 vs. 664 days, p = 0.49), nor did it significantly improve any of the secondary end points. In the NT-proBNP-guided group mortality was lower, as 46 patients died

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(26.5%) versus 57 (33.3%) in the clinically-guided group, but this was not statistically significant ($p = 0.206$).

Conclusions: Serial NT-proBNP measurement and targeting to an individual NT-proBNP value did result in advanced detection of HF-related events and importantly influenced HF-therapy, but failed to provide significant clinical improvement in terms of mortality and morbidity. (Effect of NT-proBNP Guided Treatment of Chronic Heart Failure [PRIMA]; [NCT00149422](#))

Key Words: chronic heart failure • NT-proBNP • survival

Abbreviations and Acronyms

ACE = angiotensin-converting enzyme
BNP = B-type natriuretic peptide
ESC = European Society of Cardiology
HF = heart failure
IQR = interquartile range
LVEF = left ventricular ejection fraction
NT-proBNP = N-terminal pro-B-type natriuretic peptide
QOL = quality of life

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