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Heart Failure and Cardiomyopathies

CHANGES OF NATRIURETIC PEPTIDES PREDICT HOSPITAL ADMISSIONS IN PATIENTS WITH CHRONIC HEART FAILURE: A META-ANALYSIS

Oral Contributions
Room 204 B
Saturday, March 29, 2014, 8:45 a.m.-9:00 a.m.

Session Title: Prognostic and Diagnostic Role of Biomarkers in Heart Failure
Abstract Category: 12. Heart Failure and Cardiomyopathies: Clinical
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Authors: *Gianluigi Savarese, Francesca Musella, Carmen D'Amore, Enrico Vassallo, Teresa Losco, Milena Cecere, Laura Petraglia, Bruno Trimarco, Pasquale Perrone-Filardi, Department of Advanced Biomedical Sciences. Federico II University, Naples, Italy*

Background: The relationship between B-type natriuretic peptide (BNP) and N-terminal pro-B-type natriuretic peptide (NT-proBNP) plasma levels and risk of cardiovascular events in patients with chronic heart failure (HF) has been previously demonstrated. However, it is unclear whether changes of BNP and NT-proBNP predict morbidity in chronic HF patients. The aim of this research was to explore the association between changes in BNP and NT-proBNP plasma levels and risk of hospital admission for HF worsening in chronic HF patients.

Methods: The MEDLINE, Cochrane, ISI Web of Science and SCOPUS databases were searched for articles about HF treatment until August 2013. Randomized trials enrolling patients with systolic HF, assessing BNP and/or NT-proBNP at baseline and at end of follow-up and reporting hospitalization for HF were included in the analysis. Meta-regression analysis was performed to test the relationship between BNP and NT-proBNP changes and the clinical end-point. Sensitivity analysis was performed to assess the influence of baseline variables on results. Egger's linear regression was used to assess publication bias.

Results: Nineteen trials enrolling 12,891 participants were included. The median follow-up was 9.5 months (interquartile range 6-18) and 22% of patients were women. Active treatments significantly reduced the risk of hospitalization for HF worsening (OR: 0.678; 95% CI: 0.547 to 0.841; p=0.000). In meta-regression analysis, changes in natriuretic peptide levels (both BNP and NT-proBNP) were significantly associated with risk of hospitalization for HF worsening (Regression Coefficient [RC]: 0.036; 95% CI: 0.015 to 0.056; p=0.002). When changes in BNP and NT-proBNP were separately assessed, a relationship was found between risk of HF hospitalization and changes of BNP (RC: 0.037; 95% CI: 0.003 to 0.070; p=0.038) and NT-proBNP (RC: 0.029; 95% CI: 0.001 to 0.568; p=0.046). Results were confirmed by sensitivity analysis. No publication bias was detected.

Conclusions: In HF patients, therapy-induced reduction of BNP or NT-proBNP levels is associated with reduced risk of hospitalization for HF worsening.