

Predictive Value BNP Measurements in the Course of BNP-Guided Treatment of CHF Patients

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Prevention of decompensation in chronic heart failure (CHF) patients is a difficult task.

Aim: We evaluated the positive and negative predictive value (PPV and NPV) of NT-proBNP changes as a test to predict hospitalizations for acute heart failure (AHF).

Methods Patients: were clinically evaluated. Their NT-proBNP measured at clinic visits (40 ± 19 days). Half of the patients were treated by clinical assessment (group 1) while the others were treated according to NT-proBNP as well (group 2). If measured NT-proBNP was higher than its level on the previous visit by more than 30% the patient was considered at high risk to decompensate and treatment was immediately intensified.

Results: 120 patients with CHF and at NYHA II/III/IV (49/55/16) were followed for 12.1 ± 9.9 months in an outpatient clinic. Group 1 (60 patients treated by clinical assessment) and Group 2 (60 patients treated according to NT-proBNP) were well matched (age 69.4 ± 10.5 versus 70.2 ± 11 years, and LVEF and NT-proBNP at the beginning $23 \pm 7\%$, 5820 ± 2434 pg/ml, versus $23 \pm 6\%$ and 5868 ± 2532 pg/ml, respectively [$p = \text{NS}$]). During the study period 1008 NT-proBNP measurements were recorded (8.5 ± 7.1 per patient). There were 65 and 56 hospitalizations for AHF in Groups 1 and 2, respectively ($p = \text{NS}$). PPV values for a 30% increase in NT-proBNP level as a predictor of hospitalization were 17% and 21% in Groups 1 and 2, respectively ($p = \text{NS}$). NPV for hospitalization for AHF in the absence of NT-proBNP increase was 95% and 97% in group 1 and 2, respectively ($p = \text{NS}$).

Conclusions: Increase in NT-proBNP level during an outpatient clinic follow up visit by more than 30% in comparison with level measured on previous visit had a low PPV for evolution of AHF during the next following 30 days in CHF patients. In contrast, the absence of NT-proBNP level increase during any outpatient clinic visit in comparison with level measured during previous visit has a very high NPV for hospitalizations for AHF during the next 30 days in patients with CHF.