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B-type Natruiretic Peptide Level Predicts the Long-Term Risk of Ventricular Arrhythmia Among Patients with left ventricular dysfunction

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High serum B-type natruiretic Peptide (BNP) level is a risk factor for cardiac mortality. We have previously associated high BNP serum level with a short-term risk for ventricular arrhythmia. Here we examined the hypothesis that BNP level can predict the long-term risk of ventricular arrhythmias in patients with left ventricular dysfunction (LVD).
Methods: Consecutive, stable, ambulatory patients with moderate and severe ischemic LVD and an implantable cardioverter defibrillator (ICD) were studied. Plasma BNP level was obtained at baseline. Patients were evaluated every 3-6 months, and their devices interrogated for arrhythmias. The primary end point was the occurrence of malignant ventricular arrhythmia or sudden cardiac death (SCD).
Results: The cohort consisted of 94 subjects (6 women) with a mean (+SD) age of 69 (+10) years. ICD implantation indication was for primary and secondary prevention of SCD in 49% and 51% of subjects, respectively. Over a median follow up time of 3.5 years, a primary end point occurred in 42 patients (45%). Of those, 34 were classified as ventricular tachycardia, 5 as ventricular fibrillation, and 3 as sudden death. Median BNP level was 159 pg/ml (IQR 91-390 pg/ml) and was higher among patients who experienced an end point vs. those who did not (176 pg/ml vs. 143 pg/ml). Heart failure class, ICD implantation indication, LVD severity, and age were not significant predictors of events. However, the hazard ratio for experiencing an adverse outcome among the upper BNP quartile vs. all others was 2.2 (95%CI: 1.2-4.2).
Conclusions: These results suggest that abnormally high BNP level predicts the long-term risk of ventricular arrhythmias, and might serve as an aid for risk stratification in this patient population.