Admission BNP a Flag for Mortality in Heart Failure

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DALLAS — An elevated B-type natriuretic peptide level upon admission for acute decompensated heart failure is an independent predictor of in-hospital mortality, Dr. Gregg C. Fonarow reported at the annual scientific sessions of the American Heart Association. Moreover, B-type natriuretic peptide (BNP) is an equally robust predictor of in-hospital mortality regardless of whether the patient has preserved or reduced left ventricular systolic function, added Dr. Fonarow, professor of cardiovascular medicine at the University of California, Los Angeles, and director of the Ahmanson-UCLA Cardiomyopathy Center.

"These data suggest that the BNP assay should be part of the standard admission assessment of the acute decompensated heart failure patient," he said.

Dr. Fonarow analyzed the relationship between admission BNP level and in-hospital mortality in 48,629 hospitalizations for acute decompensated heart failure (HF) during 2003-2004 at more than 275 U.S. hospitals participating in the Acute Decompensated Heart Failure National Registry (ADHERE).

He found a near-linear relationship between BNP quartile and in-hospital mortality. (See box.) The relationship was similar in the 52% of patients with a left ventricular ejection fraction of less than 40% and in those with preserved systolic function. The median hospital length of stay rose from 4.0 days in patients in the lowest quartile of BNP to 4.9 days in those in the top quartile, a difference that was highly significant because of the huge number of patients involved in the study. ICU admission was required for 12.8% of patients in BNP quartile 1, compared with 19.6% in quartile 4.

In an earlier study from ADHERE, Dr. Fonarow and coworkers developed and validated a practical bedside tool for mortality risk stratification in patients with acute decompensated heart failure (JAMA 2005;293:572-80).

The strongest in-hospital mortality predictors in this risk stratification method were admission blood urea nitrogen level, systolic blood pressure, and serum creatinine. Other significant predictors included in the bedside assessment tool were age, gender, serum sodium, pulse, and the presence of dyspnea at rest.

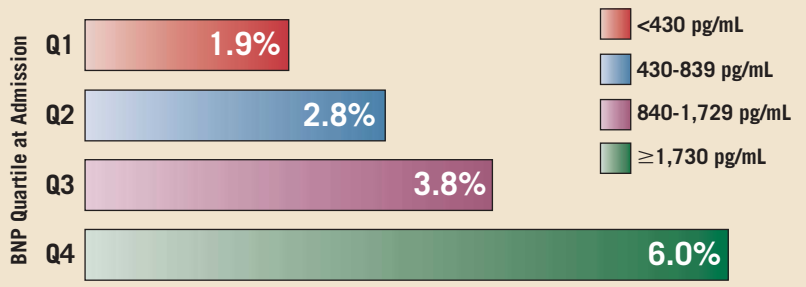
After adjustment for all of these other predictive factors, admission BNP quartile remained a highly significant independent predictor of in-hospital mortality. In fact, patients in the highest BNP quartile were 2.2-fold more likely to die during that hospitalization than were those in the lowest quartile, even after adjustment for the other eight predictors.

BNP has previously been shown to facilitate diagnosis of HF and predict long-term mortality risk in patients with chronic heart failure. However, the lab assay's prognostic utility in acute decompensated heart failure had not been studied.

The next step will be to see whether acutely decompensated patients with higher admission BNP levels benefit from a more aggressive monitoring and treatment strategy. If this hypothesis is shown to be sound, then it's possible that treatment regimens will be stratified based upon a patient's admission BNP, said Dr. Fonarow.

ADHERE is funded by Scios Inc. ■

In-Hospital Mortality Increases With Admission BNP Level In Acute Decompensated Heart Failure Patients



Note: Based on 48,629 hospitalizations for acute decompensated heart failure during 2003-2004 at more than 275 U.S. hospitals.
Source: Dr. Fonarow