B-Type Natriuretic Peptide Predicts Sudden Death in Patients With Chronic Heart Failure

To the Editor:

Berger et al conclude that “BNP levels are a strong, independent predictor of sudden death in patients with CHF.” The predictive utility of a diagnostic test is usually expressed as predictive values, either positive predictive value (PPV, ratio of number of patients with true-positive test results to all patients with positive test results) or negative predictive value (NPV, ratio of number with true-negative test results to all patients with negative test results). Using the data Berger et al give on page 2394 for a BNP (B-type natriuretic peptide) cutpoint of 130 pg/mL, the PPV is 19% and the NPV is 99%. Thus, although a BNP level below 130 would allow the clinician to reassure a patient that sudden cardiac death (SCD) is very unlikely, putting implantable cardioverter-defibrillators (ICDs) in all patients with a BNP value above 130 pg/mL implies implanting 5 ICDs for every one that would discharge appropriately in the first 3 years. Many would regard this as financially infeasible. In addition, the prior probability of SCD in their study population is 13% (44/337), a number that is improved only to 19% by using BNP levels with a cutpoint of 130 pg/mL.

The authors apparently chose a cutpoint that would maximize sensitivity (99% at the chosen cutpoint), but this results in a rather low specificity (37%). It would be nice to see a receiver-operating characteristic (ROC) curve for their data, i.e., a plot of the true-positive rate (sensitivity) against the false-positive rate (1—specificity). This would allow for better adjudication of the inevitable tradeoff between sensitivity and specificity. Furthermore, they could plot absolute values of BNP, rather than the log of BNP, because an ROC curve does not depend on the scale used.

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