BNP looks like a winner

We know from talking to our readers that heart failure is a topic of highest interest for internists and cardiologists. That is why we are pleased to feature two articles on advances in diagnosing and treating heart failure that have one thing in common—a single molecule called B-type natriuretic peptide (BNP).

BNP, produced by heart muscle, helps to regulate the renin-angiotensin system, resulting in vasodilatation and mild diuresis in response to pressure and volume stimuli to the heart. Although the existence of BNP and its relevance in hemodynamic control has been known for several years, it is just now coming of age clinically both diagnostically and therapeutically.

Dr. Peacock (page 243) describes the use of an immunofluorescent assay for BNP levels in diagnosing and monitoring heart failure. He reviews the evidence establishing the sensitivity, specificity, and positive and negative predictive values of BNP for heart failure and compares BNP's performance with alternative diagnostic modalities (history and physical examination, chest radiography, and ejection fraction testing).

Although BNP performs somewhat better than each of these alone, in reality, we should consider all the modalities as significant pieces in the diagnostic puzzle. In this respect, the reference to the importance of a suggestive differential diagnosis near the end of the article is extremely important.

The utility of a good, though imperfect, test like the BNP assay (and most other tests in medicine) is greatly enhanced in the context of an accurate estimate of pretest probability of the diagnosis under evaluation. This is the cornerstone of Bayesian analysis, and it has helped us understand how to use many tests with low specificity (eg, antinuclear antibody for lupus) or sensitivity (eg, anti-Sm for lupus) together to arrive at better diagnostic conclusions.

Drs. Mills and Hobbs (page 252) describe the therapeutic use of nesiritide, a genetically engineered form of BNP, for the emergency treatment of decompensated heart failure in the hospital. The advantage of nesiritide over nitroprusside, dobutamide, and milrinone is greater safety and over nitroglycerine is better effectiveness. The ability to administer nesiritide safely in a lower-cost environment (telemetry unit vs intensive care unit) offsets its higher cost.

The transition of BNP from laboratory bench to hospital bedside is a classic example of a new technology that is not likely to increase costs but rather may actually reduce costs by cutting hospital length of stay and reducing in-hospital monitoring requirements. It enhances care by improving diagnostic accuracy and may thereby eliminate some unnecessary admissions. BNP looks like a winner, and we could use a few more of those.

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