Peptide Test Flags Heart Risks in Young Athletes

B-type natriuretic peptide (BNP) is one of four known natriuretic peptides released by the ventricles during pressure or volume overload. It has been used primarily in patients with chronic heart failure to assess their risk of death or other complications.

A level of less than 100 pg/mL is considered normal; 500 pg/mL is the goal for heart failure patients at hospital discharge; and 700 pg/mL or more is indicative of decompensated congested heart failure.

Hypertrophic obstructive cardiomyopathy (HOCM) is a genetic condition that affects 1 in 500 people, most of whom are asymptomatic. In about 70% of patients, the condition goes undetected until it is pathologic.

The prognostic value of a BNP test to screen for the condition is based on heart failure data that show that BNP levels are elevated when there is a stretch on the myocardium, said Dr. Achar, a professor at the University of California, San Diego. "That's the same thing in a way that happens with HOCM: You get hypertrophy of the myocardium that we believe will show up with an elevated BNP, even if the patients are clinically asymptomatic or normal on physical exam," he said in an interview.

One of the motivations for the study was a young man who was identified with HOCM but who didn't heed the advice of his physicians and died of sudden cardiac arrest after a pickup game of basketball.

Echocardiogram would provide a definitive diagnosis of HOCM, but it is not cost effective when used as a screening tool in all U.S. athletes, he said.

Dr. Achar also advocates using BNP to screen for hypertrophic cardiomyopathy in patients who present with exertional dizziness.

Sudden Cardiac Death May Not Be That Sudden

Sudden cardiac death in many cases announces its onset with telltale symptoms long before it strikes, according to findings from a prospective study in Germany.

Dirk Müller, Ph.D., and colleagues at Charité Medical University of Berlin, analyzed event and symptom data from 323 patients struck by presumed cardiac arrest over the course of 1 year who were treated by a Berlin helicopter ICU and for whom a resuscitation attempt was made and pre-event symptoms were available. Symptom data were collected on the scene by emergency physicians (Circulation. 2006;114[11]:1146-50).

Only 25% of patients had no symptoms before the onset of sudden cardiac death (SCD), and of the remaining 75%, symptoms lasted a median of 50 minutes. Angina pectoris preceded SCD in 22% of patients at a median duration of 120 minutes. Dyspnea was evident in 15% and lasted a median of 30 minutes. Smaller percentages experienced nausea or vomiting (7%) or dizziness or syncope (5%). For 90% of patients, symptoms lasted more than 5 minutes, and for 64%, symptoms lasted more than an hour.

—John R. Bell