BNP Not a Useful Marker in Transplant Patients

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CARMEL, CALIF. — B-type natriuretic peptide levels are not effective in detecting clinically relevant heart failure following heart transplantation, results from a study of 130 patients showed.

The finding is important because while the role of B-type natriuretic peptide (BNP) levels in detecting symptomatic heart failure in nontransplanted patients has been well established, its role in patients who have undergone heart transplantation is unclear.

"What we do know is that BNP is elevated right after [heart] transplant," Meghana Yajnik said during a poster presentation at the Western regional meeting of the American Federation for Medical Research.

"However, several recent studies have said that BNP may have potential as a prognostic marker, in which high levels of BNP for prolonged periods after transplant may portend poorer outcome," she noted

Ms. Yajnik, who is a second-year undergraduate student at University of California, Los Angeles, and her associates in the department of medicine at the university, evaluated 130 consecutive patients who received heart transplants at the university between July 2001 and November 2003. All of the patients had BNP levels assessed at the time of their right heart catheterization and their clinical exams.

The researchers defined heart failure as both the presence of symptoms (including dyspnea, edema, or a documented increase in diuretic dose), and a pulmonary capillary wedge pressure of 15 mm Hg or greater. BNP samples taken during the first 3 months post transplant and those taken in patients with renal insufficiency (defined as a creatinine level of greater than 1.9 mg/dL) were excluded from the analysis. The mean follow-up time was 28 months.

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Of the 130 patients, 67 had 124 BNP measurements with a pulmonary capillary wedge pressure of at least 15 mm Hg. Ms. Yajnik reported that the BNP level was at least 150 pg/mL in 42 of the 124 measurements (39%). In 29 patients who had symptomatic heart failure and a pulmonary capillary wedge pressure of at least 15 mm Hg, the BNP level was at least 150 pg/mL in only 19 of the 42 measurements (45%).

"Therefore," the researchers wrote in their abstract, "a BNP level of 150 pg/mL or greater was found to have a sensitivity of only 45.2%, a specificity of 64.9%, a positive predictive value of 3.7%, and a negative predictive value of 2.4% for the detection of heart failure in heart transplant recipients. In addition, a BNP value of 150 pg/mL or greater within 8 weeks of a clinically significant episode of rejection was noted in only 5 of 10 cases."

Ms. Yajnik noted that the discrepancy between the use of B-type natriuretic peptide levels for detecting heart failure in the nontransplant and transplant populations requires further study. "Differences in the physiology between nontransplant patients and transplant patients may account for these disparate BNP levels," she said. ■