External Counterpulsation Reduces Mortality

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CHICAGO — Enhanced external counterpulsation therapy results in significantly increased left ventricular ejection fraction and improved 1-year survival in patients with advanced ischemic heart disease, according to two studies presented by Dr. William E. Lawson at the annual meeting of the American College of Cardiology.

Enhanced external counterpulsation (EECP) already is covered by Medicare and other third-party payers for relief of refractory symptoms of angina pectoris or heart failure. Prior studies have documented that the noninvasive outpatient therapy results in improvements in myocardial perfusion, endovascular function, exercise capacity, and quality of life.

These two new studies provide the first evidence of additional benefits in the key areas of mortality and ventricular function, noted Dr. Lawson, professor of medicine and director of preventive cardiology and heart center outcomes research at Stony Brook (N.Y.) University.

In one study, he analyzed the records of 4,597 patients with end-stage coronary disease enrolled in the prospective observational International EECP Patient Registry. He compared 1-year outcomes in the 3,962 patients who completed the standard course of 35 hours of EECP over 7 weeks with the 14% who completed fewer than 30 hours (a mean of 13 hours).

After censoring deaths within 60 days of starting EECP as a potential confounding variable, researchers report the 1-year mortality in EECP completers as 4.1%, vs. 14.1% in noncompleters. There were significant differences in other 1-year outcomes as well: 85% of EECP completers had improved by at least one Canadian Cardiovascular Society angina functional class, compared with 25% of noncompleters; and 4.1% in the completer group had an MI, vs. 7.7% of noncompleters.

Baseline characteristics of the two groups were similar: 89% had previously undergone a revascularization procedure, 70% had a prior MI, 92% had class III or IV angina, and only 15% were candidates for coronary revascularization.

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In a separate study conducted by Dr. Lawson and cardiologists at the People's College of Medical Sciences and Research Center, Jamnagar, India, 505 patients with ischemic heart disease underwent 2-D echocardiography 1 week before starting a 35-hour, 7-week course of EECP and again within 1 week after completing therapy.

Among the 145 patients who had a baseline left ventricular (LV) ejection fraction (EF) of 35% or less, EF increased from a mean baseline of 29% to 45%, while stroke volume improved from 68 mL to 75 mL with no change in heart rate.

In the 360 patients with a baseline EF greater than 35%, EECP was associated with an increase from a mean baseline of 48% to 56% post therapy, while stroke volume rose from 78 mL to 86 mL.

These beneficial changes in cardiac function resulted chiefly from a significant reduction in LV end systolic volume from 59 mL to 53 mL in the group with a baseline EF of 35% or less, and from 55 mL to 50 mL in patients with a baseline EF above 35%. There was no significant change in LV end diastolic volume, he continued.

Dr. Lawson is on the speakers bureau for Vasomedical Inc., which markets a proprietary EECP system. ■