Pulmonary Artery Cath Ineffective in Heart Failure

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NEW ORLEANS — Routine use of an indwelling pulmonary artery catheter to guide medical therapy in patients hospitalized for decompensated heart failure can no longer be justified, according to the findings of a National Heart, Lung, and Blood Institute–sponsored randomized trial.

Use of a pulmonary artery catheter to titrate therapy aimed at lowering pulmonary capillary wedge pressure didn't affect the primary end points of mortality or days hospitalized during the next 6 months, compared with therapy guided solely by clinical assessment, in the Evaluation Study of Congestive Heart Failure and Pulmonary Artery Catheterization Effectiveness (ESCAPE), Lynne W. Stevenson, M.D., reported at the annual scientific sessions of the American Heart Association.

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ESCAPE was a 26-site randomized trial involving 433 patients with decompensated severe heart failure in whom urgent pulmonary artery catheterization wasn't considered necessary.

A pulmonary artery catheter (PAC) is placed in roughly 40,000 heart failure (HF) patients per year. Controversy has surrounded the procedure since a 1996 study suggested PACs are associated with excessive risk and no proven benefit. ESCAPE was undertaken to answer the unresolved questions regarding PAC safety and efficacy.

Although use of a PAC had no effect on the primary end points in ESCAPE, at least it proved safe. Although PAC-related complications occurred in 4.2% of patients, 30-day mortality was 4.7% in the PAC group and 5.0% in controls, noted Dr. Stevenson, principal investigator in ESCAPE and codirector of the cardiomyopathy/HF program at Brigham and Women's Hospital, Boston.

However, 19% of patients in both arms were dead within 6 months. "This is higher mortality than most cancers, and we need to do better," she said.

There was a consistent trend favoring the PAC group in terms of greater improvement in functional status and quality of life measures during 6 months of follow-up, which were secondary end points in ESCAPE.

The difference in one of these measures—time trade-off—reached statistical significance. Time trade-off is a measure in which patients are asked a difficult hypothetical question: if you had 24 months to live in your current state of health, how many of your remaining months would you be willing to trade in order spend your remaining time feeling better? The answer at baseline was a mean of 9 months.

"We found this astounding," Dr. Stevenson said. "At the same time as we're designing trials to test survival, the patients are saying what matters to them most is not to live longer, but to live better."

At 6 months' follow-up, PAC-managed patients were only willing to trade 3 of their remaining 24 months in order to feel better; the control group would trade 7.5 months.

Still being analyzed are echocardiographic data from ESCAPE. If therapy aimed at lowering pulmonary capillary wedge pressure can be titrated reasonably well using noninvasive echocardiographic measurements and the result is a patient perception of enhanced value of life, then echocardiography may provide a risk-free replacement for PAC.

Discussant Mariell L. Jessup, M.D., said the 19% mortality at 6 months in ESCAPE highlights the limitations of medical therapy with or without knowledge of hemodynamics.

Physicians and patients can look forward to better times with the coming shift from medical management to a wide array of nonpharmacologic therapies for advanced HF, including heart transplantation, second- and third-generation ventricular assist devices, cellular therapies, and passive ventricular restraint systems, said Dr. Jessup of the University of Pennsylvania, Philadelphia. ■