For post-operative atrial fibrillation, two common treatments show equal outcomes

April 4 2016

Cleveland Clinic researchers, as part of the Cardiothoracic Surgical Trials Network (CTSN), have found that two common approaches to post-operative atrial fibrillation - rhythm control and rate control - are equally safe and effective.

Post-operative atrial fibrillation is the most common complication after cardiac surgery, occurring in 20 percent to 50 percent of patients and leading to major adverse effects such as increased morbidity, long-term mortality, reoccurring hospitalizations and increased cost.

Post-operative AF is managed by using one of two methods:

- Rate control, which slows the heart rate with medications, such as digoxin, calcium-channel blockers, and beta blockers, or;
- Rhythm control, which restores the heart's normal sinus rhythm through antiarrhythmic drugs or through direct current cardioversion that uses an electrical shock to convert the heart rhythm back to normal.

The multicenter, randomized trial found that each strategy was associated with equal numbers of hospital days, similar rates of complications and low rates of persistent AF after 60 days. The study showed that the physician should tailor the treatment strategy to an individual patient's clinical situation.

"This is the first large, randomized controlled clinical trial examining

treatment strategies for this common complication," said Marc Gillinov, M.D., a cardiothoracic surgeon in Cleveland Clinic's Sydell and Arnold Miller Family Heart & Vascular Institute. "Based upon these results, it may be reasonable to begin with a strategy of rate control, which limits the risk of toxicity from rhythm control agents."

The findings are being presented by Dr. Gillinov, at the American College of Cardiology 65th Annual Scientific Sessions in Chicago and published simultaneously in the *New England Journal of Medicine* (NEJM).

The study consented 2,109 patients undergoing elective cardiac surgery to treat coronary artery disease (40 percent), heart valve disease (40 percent) or a combination of both (20 percent). Of those patients, 33 percent developed new onset post-operative atrial fibrillation, out of whom 523 were randomized to a treatment strategy of either rate or rhythm control. Post-operative atrial fibrillation developed in 28 percent of patients who underwent an isolated CABG, 33.7 percent of isolated valve surgery patients, and 47.2 percent of patients who underwent combined CABG and valve surgery.

The primary outcome - the numbers of days in the hospital from the date patients were randomized until 60 days later - did not differ between the patient groups assigned to rate control or rhythm control. There were no differences in overall serious adverse events between the two groups. The average time to onset of post-operative atrial fibrillation was 2.4 days (0-7 days) from surgery.

In the study, rhythm control medications resolved AF faster but came with stronger side effects and more patients had to switch treatment due to intolerance. Rate control led to a slightly higher prevalence of AF during follow up. At 60 days, more rhythm control patients were free of AF, but neither treatment was deemed superior.

"These trial results will serve as valuable guidance to help manage patients after heart surgery," said Michael J. Mack, M.D., chair, Cardiovascular Service Line, Baylor Scott & White Health; cardiovascular researcher, Baylor Scott & White Research Institute; and contributing author to the study.

"Postoperative atrial fibrillation is a common complication of cardiac surgery and adversely affects patient recovery. In patients with postoperative atrial fibrillation, one strategy does not appear to have a net clinical advantage over the other, but there are clinical differences between these strategies. The results of this trial fill an important knowledge gap and should better inform therapeutic decisions for this common complication," said Annetine C. Gelijns, Ph.D., the Edmond A. Guggenheim Professor of Health Policy and Chair of the Department of Health Evidence and Policy at the Icahn School of Medicine at Mount Sinai, and the principal investigator for the Data Coordinating Center based at Mount Sinai.

This CTSN trial was conducted at a total of 21 centers in the U.S. and Canada. Core sites include Baylor Research Institute, Cleveland Clinic, Duke University, Institut Universitaire de Cardiologie et de Pneumologie de Québec, Hôpital Laval, Montefiore-Einstein Heart Center, Montreal Heart Institute, Suburban Hospital, University of Virginia, University of Pennsylvania, University of Southern California and 11 additional Consortium sites participated as well. The CTSN Data Coordinating Center is located at the Icahn School of Medicine at Mount Sinai and directs each of the CTSN clinical trial designs and methodologies, regulatory and trial conduct and study data analysis and reporting.

Provided by Cleveland Clinic

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