Patients with heart block see strong benefit from cardiac resynchronization therapy

November 6 2012

Heart failure patients with a condition called "heart block" derive significant benefit from cardiac resynchronization therapy (CRT), according to the results of the Block HF clinical trial, presented today at the American Heart Association Scientific Sessions 2012 meeting in Los Angeles.

Anne B. Curtis, MD, Charles and Mary Bauer Professor and Chair of Medicine in the University at Buffalo School of Medicine and Biomedical Sciences and principal investigator of Block HF, presented results of the eight-year-long, national, multicenter, randomized clinical trial sponsored by Medtronic, Inc., which enrolled more than 900 patients. Curtis discusses the results in this video:

"These findings confirm what some clinicians and researchers have hypothesized for some time—that heart failure patients with heart block do better when both sides of the heart are resynchronized, called biventricular pacing, using a cardiac resynchronization therapy (CRT) device," she says. "The results of Block HF may lead to a reassessment of treatment guidelines for heart failure patients with heart block."

In the trial, 349 patients underwent biventricular pacing with a CRT device and 342 patients underwent the conventional right ventricular pacing. Patients who underwent biventricular pacing had a 26 percent reduction in the combined endpoint of mortality, heart-failure related urgent care and deterioration in heart function detected by echocardiography.

There also was a 27 percent relative risk reduction in the composite endpoint of heart failure urgent care and all-cause mortality.

The Block HF trial was designed to address the best way to treat atrioventricular block (AV block), a partial or complete block in the main "trunk" of the heart's electrical conduction system.

"AV block prevents electrical impulses from reaching the bottom chambers of the heart, which then beat very slowly or not at all," explains Curtis.

To treat AV block, many patients are implanted with a standard pacemaker with leads or pacing wires in the top chamber (right atrium) and the bottom chamber (right ventricle) of the heart. "But that fix can lead to other problems," Curtis says, "such as creating less synchrony between the left and right ventricles of the heart, making their heart failure symptoms even worse."

Researchers and clinicians have hypothesized that better outcomes might result from pacing both the left and right ventricles of the heart, called biventricular pacing, which involves implanting a cardiac resynchronization therapy device.

"Implanting these devices is more complicated than putting in a standard pacemaker, something clinicians don't want to put patients through without clear evidence of a benefit," says Curtis. "Today, we are announcing that Block HF does show that benefit."

Heart failure affects approximately 6 million people in the U.S. at a cost of somewhere between $20 and 56 billion/year. Of those, AV block affects more than 800,000 Americans and more than a million people worldwide.

Curtis, a UB faculty member since 2010, is one of the world's leading clinical cardiac electrophysiologists and an expert in cardiac arrhythmias. Her clinical research has significantly advanced knowledge of human cardiac electrophysiology and heart rhythm abnormalities.

Her research interests include clinical trials in implantable device therapy for prevention of sudden cardiac death and management of heart failure, as well as clinical trials in atrial fibrillation. She has been principal investigator, co-investigator, sponsor or steering committee member on 85 research studies and clinical trials and she has written more than 250 peer-reviewed manuscripts, book chapters, reviews and editorials. She also is author of a book on cardiac pacing.

Provided by University at Buffalo