

Synchronizing a failing heart

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November 14, 2010 – One of the largest, most extensive worldwide investigations into heart failure, led by the University of Ottawa Heart Institute (UOHI), conclusively proves that a new therapeutic implant synchronizes and strengthens a fading heart beat while reducing risk of death by 24% compared to the current treatment.

The research, co-led by Dr. Anthony Tang and Dr. George Wells at the Heart Institute, brings the promise of life-saving treatment for patients with symptoms of mild to moderate heart failure – an increasingly common condition among an aging population that can lead to sudden cardiac death. Each year, more than 500,000 Canadians and five million Americans suffer heart failure.

"This kind of device brings the potential to save thousands of lives in Canada alone and offers new hope to so many heart patients and their families. Helping the lower chambers of the heart beat strongly and in unison can improve a person's quality of life, keep them out of hospital longer and reduce their risk of sudden death," said Dr. Tang.

Results of the clinical trial, which got under way in 2003, were published online today in the prestigious *New England Journal of Medicine* (www.NJEM.org) and coincided with the release of the Heart Institute analysis at the Scientific Sessions of the American Heart Association in Chicago. The research represents one of the largest international medical device trials undertaken in 2003, comprising 1,798 patients in 24 centres in Canada, Australia, Europe and Turkey.

The Ottawa team consisted largely of top electrophysiologists – cardiologists specializing in surgical procedures to regulate a faulty heart rhythm. Heart failure patients were implanted with either a basic miniature defibrillator (ICD) or with a new device carrying insulated wires called leads to transmit signals and electrical impulses to the heart in an effort to stimulate and coordinate the heart to be beating in-sync. This therapy is called cardiac resynchronization therapy (CRT).

The study, which followed patients for an average of 40 months, showed that patients with CRT live longer with a reduction of the rate of death. In addition, patients with CRT were less likely to be admitted to hospital for worsening of heart failure.

Until now, no research had been undertaken to examine the specific benefits and survival rates in heart failure patients who have been implanted with a CRT along with an ICD.

"This trial represents a tremendous research success for cardiovascular scientists and demonstrates the importance of clinical evaluative research," said Dr. Alain Beaudet, President of the Canadian Institutes of Health Research, which co-funded the research. "We congratulate the Heart Institute for its efforts, which will lead to better health outcomes and longer lives for heart patients."

"Medtronic recognizes the expertise of Canadian electrophysiologists and congratulates them for their leadership in participating and leading this key clinical trial to investigate the benefits of cardiac device therapy in [heart](#) failure patients," said Neil Fraser, President of Medtronic of Canada Ltd., which also co-funded the research. "This trial demonstrates that a broader population of [heart failure](#) patients could benefit from our therapies, including those with mild symptoms, and they should receive them."

Provided by University of Ottawa Heart Institute

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