

Combined use of recommended heart failure therapies significantly boosts survival odds

February 22 2012, By Rachel Champeau

(Medical Xpress) -- A UCLA-led study has found that a combination of several key guideline-recommended therapies for heart failure treatment resulted in an improvement of up to 90 percent in the odds of survival over two years.

The research is published Feb. 21 in the online [Journal of the American Heart Association](#).

Heart failure, a chronic, [progressive disease](#), affects millions of individuals and results in [morbidity](#), the use of significant health care resources, and substantial costs.

While certain therapies are recommended for [heart failure patients](#) in the national guidelines of the American College of Cardiology and the [American Heart Association](#), this study is the first to examine the specific incremental contribution of each of these therapies in improving survival when combined together progressively in a real-world clinical practice, the researchers said.

"We found incremental and cumulative improvement in the odds of two-year survival rates as each of these guideline-recommended therapies was implemented with patients," said the study's first author, Dr. Gregg Fonarow, UCLA's Eliot Corday Professor of Cardiovascular Medicine and Science and director of the Ahmanson–UCLA Cardiomyopathy Center at the David Geffen School of Medicine at UCLA.

Fonarow noted that the findings also provide further rationale for employing performance-improvement systems and disease-management programs to ensure the implementation of recommended therapies in eligible heart failure patients.

For the study, researchers utilized the Registry to Improve the Use of Evidence-Based Heart Failure Therapies in the Outpatient Setting (IMPROVE HF), a database of patients at 167 cardiology-practice clinics across the country.

The team reviewed medical chart data from 1,376 patients who died at 24 months, compared with 2,752 controls who survived to 24 months. Researchers specifically targeted patients who had weakening function in the heart's left ventricle, a symptom of chronic heart failure, which occurs when the when the ventricle can no longer pump enough blood to the body's other organs.

The seven key guideline-recommended therapies evaluated were:

- Three types of heart failure medications: beta blockers, aldosterone antagonists, and angiotensin-converting enzyme inhibitors or angiotensin receptor blockers.
- Cardiac resynchronization therapy, which helps coordinate heart contractions.
- Anti-coagulant therapy for atrial fibrillation, to prevent clot formation in patients with an irregular heart beat.
- Implantable cardioverter-defibrillator devices, to deliver electrical shocks if potentially fatal heart-rhythm abnormalities occur.

- Heart-failure patient education.

Researchers found that as each therapy was added, the overall survival rate increased incrementally — starting with a 39 percent improved odds of two-year survival when just beta blockers were prescribed, and up to 81 percent to 90 percent when several other therapies were added — compared to no treatment at all.

However, the team found that the survival benefit appeared to plateau once a patient sequentially received four to five therapies, demonstrating an 83 percent reduction in the odds of 24-month mortality.

"Together the cumulative 24-month survival benefits of these therapies are impressive," said Fonarow, co-chief of clinical cardiology in the UCLA Division of Cardiology. "High-quality, patient-centered outcomes research is a national priority and can better inform clinical decision-making. This study provides patients, clinicians, purchasers and policymakers with compelling evidence of the incremental improvements in clinical outcomes for patients with heart failure that can be achieved with guideline-recommended therapies."

Each individual therapy, with a single exception, was also associated with a [survival](#) benefit. Beta blockers and cardiac resynchronization therapy imparted the greatest individual benefits by providing lowered odds of mortality of 42 percent and 44 percent, respectively.

Fonarow also noted that being able to independently value these heart failure therapies may provide a basis for choosing between treatments when a choice needs to be made on a clinical level, based on cost, tolerance or adherence issues.

The one therapy that was not associated with improved mortality benefit

was the use of aldosterone antagonists. Fonarow said that while multiple randomized clinical trials have demonstrated the benefits of aldosterone antagonist therapy in [heart failure](#) patients, more study in an outpatient setting needs to be done to evaluate the real-world clinical effectiveness of these agents.

Medtronic Inc., a manufacturer of cardiac resynchronization therapy and implantable defibrillator devices, provided financial and material support for the IMPROVE HF registry. The company had no role or input in the selection of end-points or quality measures used in the study.

Fonarow has received honoraria and consultant fees from Medtronic. Additional author financial disclosures are listed in the study manuscript.

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