

Tens of thousands of lives could potentially be saved by key heart failure therapies

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A national study has found that nearly 68,000 deaths potentially could be prevented each year by optimally implementing key national guideline–recommended therapies, including critical medications and cardiac devices, for all eligible heart failure patients.

Although [heart failure](#) is a major cause of [death](#), morbidity and health care expenditures in the U.S., the routine clinical use of scientifically proven treatments that reduce mortality and improve quality of life has been slow and inconsistent.

"This is one of the first studies to quantify the potential survival benefits that could result if these guideline-recommended therapies were universally applied to all eligible heart failure patients in the United States," said the study's first author, Dr. Gregg C. Fonarow, UCLA's Elliot Corday Professor of Cardiovascular Medicine and Science and director of the Ahmanson–UCLA Cardiomyopathy Center at the David Geffen School of Medicine at UCLA.

Published in the June edition of the *American Heart Journal*, the findings help further the understanding of the possible health benefits of more consistent use of these heart failure therapies. The study also provides strong motivation for clinicians to improve implementation of these evidence-based treatments through performance-improvement initiatives and programs.

Heart failure occurs when the heart can no longer pump enough blood to

the body's other organs. Often, patients with heart failure have reduced left-ventricle ejection fraction, which indicates a lowered volume of blood being pumped out of this heart chamber with each beat of the heart.

The study examined six evidence-based therapies for heart failure patients with reduced left-ventricle ejection fraction. The six therapies are highly recommended in the national guidelines of the American College of Cardiology and the American Heart Association for heart failure patients.

In conducting the study, investigators used a number of published sources, including clinical trials results, in-patient and out-patient patient registries for heart failure patients, and heart failure quality-of-care studies in cardiology and general clinical practice settings.

For each heart failure therapy, the study authors determined patient eligibility criteria, estimated the frequency of use, identified fatality rates and calculated mortality risk–reduction statistics due to treatment.

They found that out of 2,644,800 heart failure patients with reduced left-ventricular ejection fraction in the U.S., many were eligible for the evidence-based therapies but did not receive them. The number of potential deaths that could be prevented each year with optimal implementation of all six therapies totaled 67,996, they said.

Potential lives saved by individual therapies alone are as follows:

Four heart failure medications

Aldosterone antagonists: 21,407 potential lives saved; beta blockers: 12,922; angiotensin-converting enzyme inhibitors or angiotensin receptor blockers: 6,516; hydralazine/isosorbide dinitrate: 6,655

Cardiac resynchronization therapy

Potential lives saved with this device, which helps coordinate heart contractions: 8,317

Implantable cardioverter-defibrillator

Potential lives saved with this device, which delivers electrical shocks if potentially fatal heart rhythm abnormalities occur: 12,179

According to the researchers, the greatest potential gains were seen with those therapies for which the treatment gaps (number of patients who did not receive the therapy for which they were eligible) and the magnitude of benefits were the largest. Improved use of aldosterone antagonist therapy, followed by beta blocker and implantable cardioverter-defibrillator therapies, would provide the greatest benefit in possible lives saved, they said.

Mortality risk–reduction due to treatment ranged from 17 percent with angiotensin-converting enzyme inhibitors or angiotensin receptor blockers to 43 percent with hydralazine/isosorbide.

The number of heart failure patients who were eligible but not currently being treated ranged from 139,749 for hydralazine/isosorbide dinitrate to 852,512 for implantable cardioverter-defibrillators.

"With tens of thousands of lives potentially saved with optimal application of these therapies, the findings have significant clinical and public health implications," Fonarow said. "Determining the impact of each evidence-based therapy is helpful in prioritizing performance-improvement initiative efforts and planning future strategies to improve adherence."

Fonarow noted that the research estimated only reduction in deaths by optimal application of these therapies. Further study may evaluate hospitalization reductions, improvements in symptoms, functional status and other important clinical outcomes related to broader application of these therapies.

Provided by University of California - Los Angeles

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