

Death rates decline for advanced heart failure patients, but outcomes are still not ideal

May 23 2013

UCLA researchers examining outcomes for advanced heart-failure patients over the past two decades have found that, coinciding with the increased availability and use of new therapies, overall mortality has decreased and sudden cardiac death, caused by the rapid onset of severe abnormal heart rhythms, has declined.

However, the team found that even today, with these significant improvements, one-third of patients don't survive more than three years after being diagnosed with advanced disease. Heart failure is increasingly common, affecting close to 6 million individuals in the United States alone.

"We are doing a good job of ensuring that patients receive the latest therapies for heart failure, but we still have a lot more work to do," said senior author Dr. Tamara Horwich, an assistant professor of cardiology at the David Geffen School of Medicine at UCLA. "It is very sobering that despite recent improvements, a third of advanced heart-failure patients aren't surviving past three years."

The findings are published in the May issue of the journal *Circulation–Heart Failure*.

The study focused on heart failure patients referred to UCLA, a major center for advanced heart failure management and [heart transplants](#). The

researchers examined outcomes in 2,507 adults who had "heart failure with reduced [ejection fraction](#)," which is characterized by a weak [heart muscle](#).

Patients were divided into three six-year eras, based on when they received care: (1) 1993–98, (2) 1999–2004 and (3) 2005–10. Researchers looked at [patient outcomes](#) for each of the groups at one-, two- and three-year follow-up points after diagnosis.

Significant differences emerged between the eras. In the second and third eras, the team found greater use of therapies that help prolong life, including medications such as beta-blockers and aldosterone antagonists and devices that help control and stabilize [irregular heart rhythms](#), including implantable cardioverter defibrillators and biventricular pacemakers. For example, beta-blocker usage in the first era was only 15.5 percent, but by the third era, a full 87.1 percent of patients received the medication.

Researchers believe the increased use of these therapies in later eras is due to the completion of clinical trials—and the publication of results—that demonstrated their benefit, as well as the inclusion of these therapies in national treatment guidelines developed by organizations like the American Heart Association and the American College of Cardiology.

The team also found that [sudden cardiac death](#) occurred significantly less often in the later eras. At the three-year follow-up point for patients, sudden death declined from 10.1 percent in the first era to 6.4 percent in the second era and 4.6 percent in the third.

"The decline in sudden cardiac death is most likely due to increased use of medications and devices like defibrillators," said first author John Loh, a medical student at the Geffen School of Medicine.

There was also a decrease in overall mortality rates in the later eras, Loh noted. Specifically, after adjusting for multiple risk factors like age and gender, researchers found that second-era patients were 13 percent less likely to die from any cause than first-era patients. Third-era patients were 42 percent less likely than those in the first era to die from any cause.

Although there was a reduction in overall mortality, there was a shift in the mode of death seen over time. The study found that patient mortality from progressive heart failure had increased from 11.6 percent in the first era to 19.9 percent in the third. The need for urgent heart transplants was also up in later years. According to the researchers, this shift in mode of death may result from a modest increase in progressive heart-failure death or the need for transplants in patients who might have died suddenly in earlier eras, before the widespread use of implantable cardioverter defibrillators.

"For patients with the most advanced heart failure, treatment options used to be limited to heart transplantation—or face early death," said study author Dr. Gregg C. Fonarow, UCLA's Eliot Corday Professor of Cardiovascular Medicine and Science and director of the Ahmanson–UCLA Cardiomyopathy Center. "This study demonstrates that with improvements in medical therapy and availability of implanted devices, survival for these patients has improved considerably. What was once considered an end-stage, terminal disease state has, through implementation of innovative treatments, evolved into a manageable, but still challenging, condition."

In addition, although the overall mortality rate for all patients at the three-year follow-up point fell from 36.4 percent in the first era to 31.5 percent in the third era—a statistically significant reduction that represents thousands of patients—the researchers note that this is still too high.

"Despite a dramatic improvement in some outcomes, we still need to gear up and continue to investigate new modalities of treatment for [heart failure patients](#)," Fonarow added.

According to the researchers, the study provides a "real-world" view of advanced [heart failure patients](#) and the impact of implementing the latest treatments and devices.

Provided by University of California, Los Angeles

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