

Multi-drug regimen for heart failure could meaningfully extend patients' lives

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Patients with heart failure have substantially shorter life expectancies than people without this condition. Approximately 6.5 million people in the U.S. and over 64 million people worldwide have heart failure, and

about half of them have heart failure with reduced ejection fraction (HFrEF). In the last three decades, there have been many advancements in the treatment of HFrEF with several new drugs showing promising results in randomized, controlled clinical trials. However, uptake of new therapies has been slow. A team led by investigators from Brigham and Women's Hospital has conducted an analysis to estimate the potential benefits of using a comprehensive regimen that incorporates newer therapies into clinical practice compared to using a more conventional regimen. The team found that comprehensive therapy could extend lifespan up to six years and eight years free from cardiovascular death or first hospital admission for HFrEF. Results are published in *The Lancet*.

"There's been some resistance to adopting comprehensive therapy for [heart failure patients](#)," said corresponding author Scott Solomon, MD, of the Brigham's Cardiovascular Division. "What we did here was to say, 'What might the benefit be over a patient's lifetime?' And the benefit we're seeing is pretty dramatic."

"Across a broad range of ages, these therapies, when implemented in combination, may meaningfully improve life expectancy and help patients remain out of the hospital," said lead author Muthiah Vaduganathan, MD, MPH, also of the Brigham's Cardiovascular Division.

To conduct their analysis, Solomon, Vaduganathan and colleagues leveraged data from three previously conducted randomized, [clinical trials](#). Each trial evaluated a therapy for heart failure patients: mineralocorticoid receptor antagonists (MRA), angiotensin receptor-neprilysin inhibitors (ARNI), and sodium/glucose cotransporter (SGLT2) inhibitors. Drawing on the data from these trials, the team conducted an actuarial analysis to estimate the lifetime benefit of taking all three drugs in addition to a conventional regimen.

Their analysis found that over the course of a lifetime of use, assuming consistent treatment benefits, the comprehensive regimen could add up to eight years of survival free from cardiovascular events and hospitalization due to heart failure. While younger patients with HFrEF would stand to benefit the most, the researchers reported gains in [life expectancy](#) for all age groups analyzed.

Offering readily understandable metrics for clinicians and patients to be able to refer to when discussing treatment options was important to the authors, especially amid the COVID-19 pandemic.

"Patients with [heart](#) failure are especially vulnerable during COVID-19 and ensuring effective preventive care for this high-risk segment of the population is a top priority in the next phase of the pandemic planning," said Vaduganathan.

The authors note that their analysis has certain limitations, including assumptions about the [therapy](#), adherence, and that benefits would continue to accrue over time. In addition, the analysis does not examine the costs of [heart failure](#) drugs or the potential side effects—such as kidney toxicity—of taking these drugs in combination.

More information: Vaduganathan M et al. "Estimating lifetime benefits of comprehensive disease-modifying pharmacological therapies in patients with heart failure with reduced ejection fraction: a comparative analysis of three randomised controlled trials" *The Lancet* [DOI: 10.1016/S0140-6736\(20\)30748-0](https://doi.org/10.1016/S0140-6736(20)30748-0)

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