

Comparison of diuretics shows no difference in heart failure survival

January 17 2023



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Two drugs widely used to treat adults with heart failure—furosemide and torsemide—showed no difference in their ability to improve patient survival when compared, according to findings from a clinical trial

supported by the National Institutes of Health. The trial, one of the largest to date studying routine medications in heart failure, helps resolve a long-standing question about whether one drug is better than the other for treating this group of patients, who carry a high risk of death.

Both drugs are diuretics, or water pills, which help relieve congestion and breathing difficulties caused by fluid buildup in patients with heart failure. Furosemide, which was discovered decades ago, is the most-used diuretic to treat heart failure. The other drug, torsemide, is a comparatively newer medicine. Past studies have suggested torsemide might have an advantage over furosemide in reducing deaths due to heart failure, but this question remained unresolved.

The findings from the trial, called Torsemide Comparison with Furosemide for Management of Heart Failure (TRANSFORM-HF), not only have immediate clinical applications, but they also highlight the critical need for more effective, life-saving therapies for [heart failure patients](#). The study was published in the *Journal of the American Medical Association (JAMA)*.

More than 6 million American adults live with heart failure, according to the Centers for Disease Control and Prevention. The chronic, debilitating condition develops when the heart can't pump enough blood to meet the body's needs. It is a growing public health problem with upwards of 8 million Americans anticipated to have heart failure in 2030, according to the American Heart Association. The condition is most common in people 65 years or older.

For the trial, researchers studied 2,859 patients who had been hospitalized with heart failure at 60 medical centers across the United States. They randomly assigned them to a strategy of either furosemide or torsemide and followed them for an average of 17 months to track survival outcomes. The median age of the patients was 65 years. During

the follow-up period, death occurred in 26.1% of those on torsemide and 26.2% of the patients on furosemide.

"Overall, our study showed that torsemide did not improve survival compared to furosemide in this high-risk population of patients with heart failure, and we also observed similar rates of hospitalization with the two medications," said study co-leader Robert J. Mentz, M.D., chief of the heart failure section in the Division of Cardiology and associate professor of medicine at Duke University Medical Center, Durham, North Carolina.

"We're not saying that patients don't need diuretics. We're saying that there's no difference in the survival benefit of these two therapies," Mentz noted. "This suggests we should be spending more time focusing on the right diuretic dose for our patients and working to treat patients with therapies that improve clinical outcomes in heart failure."

Mentz pointed out that the death rate for the patients enrolled in the study was high. About a quarter (26%) of individuals in both drug-treatment groups died during the 17-month follow-up period of the study.

David Goff, M.D., Ph.D., director of the NHLBI's Division of Cardiovascular Sciences, agreed that the high death rate among those patients with heart failure during the trial is concerning, given the use of good guideline-based treatments during this trial.

"What this trial also tells us is that there's still a lot of work to do to improve care and outcomes for patients with heart failure," said Goff, who was not a part of the study team. "More studies are needed, and NIH is actively exploring better ways to treat heart failure as well as prevent it from occurring."

The trial participants were diverse and included a high proportion of women (36.9%) and Black Americans (33.9%), who are often underrepresented in clinical studies of heart failure.

"This study represents an important step in understanding how heart failure treatments affect all groups and may help reduce health disparities associated with this condition," said Patrice Desvigne-Nickens, M.D., a study co-author and a medical officer in the Heart Failure and Arrhythmias Branch in NHLBI's Division of Cardiovascular Sciences.

In the past several decades, studies have shown that a few medications improve outcomes for patients with heart failure, yet further work is needed to consistently use these therapies in eligible patients. There are also important data highlighting opportunities to prevent heart failure through adapting a heart-healthy lifestyle.

This includes aiming for a healthy weight, getting regular physical activity, quitting smoking, getting sufficient sleep, and managing stress. Other steps include controlling conditions that increase your risk of [heart failure](#), such as diabetes and high blood pressure. If you have [heart failure](#), see your health care provider to help manage your condition.

More information: Robert J. Mentz et al, Effect of Torsemide vs Furosemide After Discharge on All-Cause Mortality in Patients Hospitalized With Heart Failure: The TRANSFORM-HF Randomized Clinical Trial, *JAMA* (2023). [DOI: 10.1001/jama.2022.23924](https://doi.org/10.1001/jama.2022.23924)

Provided by NIH/National Heart, Lung and Blood Institute

Citation: Comparison of diuretics shows no difference in heart failure survival (2023, January

17) retrieved 27 February 2023 from <https://medicalxpress.com/news/2023-01-comparison-diuretics-difference-heart-failure.html>

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