

# Too many heart failure patients are treated with IV fluids, study finds

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Many patients hospitalized with severe heart failure are receiving potentially harmful treatment with intravenous fluids, a Yale-led study has found.

The observational study, published in the *Journal of the American College of Cardiology (JACC): Heart Failure*, is the first to examine use of common IV [fluids](#) in hospitalized [heart failure patients](#).

Heart failure patients are commonly treated with diuretics to avoid excess fluid buildup and to improve symptoms. However, many hospitalized patients also often receive IV fluids during early care in hospitals. Because the administration of IV fluids may worsen the congestive symptoms, Yale researchers decided to investigate the use of IV fluids in patients with heart failure.

The researchers reviewed data from over 130,000 hospitalizations of patients with decompensated heart failure who received IV fluids during the first two days. They found that 11% of the patients were treated with IV fluids in addition to diuretics. "It was given to over 10% of heart failure patients, which to us is a big number," said first author Behnood Bikdeli, M.D., a research scholar at Yale Center for Outcomes Research and Evaluation (CORE) and a second-year internal medicine resident at Yale-New Haven Hospital. That percentage is significant, he noted, considering that approximately 5 million people in the United States have a diagnosis of heart failure.

Patients given both therapies, the study found, were more likely to suffer adverse consequences, such as higher rates of critical care admission, intubation, dialysis, and even death, compared to those given diuretics alone. While the study did not determine that the IV fluids caused the negative outcomes, the link warrants further investigation, Bikdeli noted. "It's counterintuitive. Although we have several potential explanations in mind, use of fluids may have led to worse outcomes," he said. The retrospective review also found widespread differences in the type and amount of IV fluids given to hospitalized [heart failure patients](#).

"Our findings are surprising and provocative," Bikdeli said. "We need to better understand who these patients are, why they received [intravenous fluids](#), and whether use of intravenous fluids was the cause of their worse outcomes. In the interim, it would be helpful for hospital administrators to promote policies that help reduce inadvertent use of intravenous fluids for patients with heart failure."

Provided by Yale University

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