Effectiveness of drug to improve natriuretic peptide levels for chronic heart failure

November 8 2015

Mihai Gheorghiade, M.D., of the Northwestern University Feinberg School of Medicine, Chicago, and colleagues randomly assigned 456 patients with worsening chronic HF and reduced left ventricular ejection fraction (a measure of how well the left ventricle of the heart pumps with each beat) to receive placebo or 1 of 4 daily target doses of the medication vericiguat for 12 weeks. This *JAMA* study is being released to coincide with its presentation at the American Heart Association's Scientific Sessions 2015.

More than 1 million hospitalizations for heart failure (HF) occur annually in the United States alone, and more than 80 percent of these hospitalized patients have worsening chronic HF. Despite an often rapid and substantial in-hospital improvement in HF signs and symptoms with standard therapy, approximately 25 percent of patients are rehospitalized within 30 days and 30 percent of patients may die within 1 year.

This phase 2 study, which included patients from across Europe, North America, and Asia, was conducted to determine the optimal dose and tolerability of the drug vericiguat to reduce elevated natriuretic peptide levels. Natriuretic peptides are produced by the heart in response to high pressures inside the heart, which is typical in heart failure. Elevated levels are seen in the setting of worsening heart failure and correlate with severity of symptoms and risk of death.

Overall, 351 patients (77 percent) completed treatment with the study drug with valid 12-week N-terminal pro-B-type natriuretic peptide (NT-

proBNP) levels and no major protocol deviation. In the primary analysis, change in NT-proBNP levels from baseline to week 12 was not significantly different between the pooled vericiguat group and placebo. The secondary analysis suggested a dose-response relationship, such that higher vericiguat doses were associated with greater reductions in NT-proBNP level. Rates of any adverse event were 77 percent and 71 percent among the placebo and 10-mg vericiguat groups, respectively.

"Among patients with worsening chronic HF and reduced LVEF, compared with placebo, vericiguat did not have a statistically significant effect on change in NT-proBNP level at 12 weeks but was well-tolerated. Further clinical trials of vericiguat based on the dose-response relationship in this study are needed to determine the potential role of this drug for patients with worsening chronic HF," the authors write.

More information: DOI: 10.1001/jama.2015.15734