

No difference in heart outcomes found in use of two diuretics to treat blood pressure

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Two common diuretics used to control blood pressure had no difference in cardiovascular outcomes, including death, according to late-breaking science research presented today at the American Heart Association's

Scientific Sessions 2022. The meeting, held in person in Chicago and virtually, Nov. 5–7, 2022, is a global exchange of the latest scientific advancements, research and evidence-based clinical practice updates in cardiovascular science.

Among more than 13,500 study participants, those treated with the blood pressure-lowering medication chlorthalidone appeared to have no difference in cardiovascular outcomes or non-cancer deaths compared to people treated with hydrochlorothiazide. Yet, among the small group who had a history of heart attack or stroke, those taking chlorthalidone had reduced the risks of [heart disease](#) and death by an average of 27%.

The results are from a study exploring whether chlorthalidone was superior to hydrochlorothiazide in preventing cardiovascular events among people with high blood pressure. According to the American Heart Association's Heart Disease and Stroke Statistics 2022 Update, nearly half of U.S. adults have high blood pressure, which is a leading cause of heart disease.

Chlorthalidone and hydrochlorothiazide are diuretics that have been prescribed for more than 50 years and are considered first-line treatment for [high blood pressure](#). Based on earlier studies and other research suggesting that chlorthalidone did a better job controlling blood pressure over 24 hours compared to hydrochlorothiazide, many specialists believed chlorthalidone would be more beneficial to reducing the risks of developing heart disease.

Researchers designed The Diuretic Comparison Project (DCP) as a point-of-care clinical trial that allowed participants and [health care professionals](#) to know which medication was being prescribed and to administer the medication in a real-world setting. The point-of-care aspect offered several unique features to the trial, explained Areef Ishani, M.D., the study's corresponding author, the director of the

Minneapolis Primary Care and Specialty Care Integrated Care Community and the director of the VA Midwest Health Care Network in Minneapolis.

"Patients can continue with their normal care with their usual care team because we integrated this trial into primary care clinics," Ishani said. "We followed participant results using their electronic health record. This study was non-intrusive, cost-effective and inexpensive. Plus, we were able to recruit a large rural population—almost half of the participants—and that's atypical for a study like this where we usually must rely on big academic medical centers."

Researchers recruited more than 13,500 U.S. veterans who were at least 65 years old who received care from 4,120 primary care professionals at 500 clinics. Participants were predominantly men (97%), white veterans (77%), non-Hispanic veterans (93%), with 55% living in urban areas. At the beginning of the study, the average systolic blood pressure (the top number in a [blood pressure](#) reading) was 139 mm Hg. The participants were randomized into one of two groups 1) hydrochlorothiazide at 25 or 50 mg/day, or 2) an equivalent dose of 12.5 or 25 mg/day of chlorthalidone. The study examined rates of heart attack, stroke, heart failure or non-cancer death after a median of about 2.5 years.

The analysis of all study participants found:

- The heart disease and death rates for the chlorthalidone group (9.4%) and the hydrochlorothiazide group (9.3%) were nearly identical;
- There was also no difference in secondary outcomes (heart attack, stroke, [heart failure](#) or other [cardiovascular outcomes](#)) between the participants taking the two different medications.
- However, in a subgroup analysis, differences were found:

- Among the participants who had a history of heart attack or stroke, those taking chlorthalidone had reduced the risks of heart disease and death by an average of 27%;
- Chlorthalidone tended to worsen these outcomes by an average of 12% in participants who did not have a history of heart attack or stroke.

"We were surprised by these results," Ishani said. "We expected chlorthalidone to be more effective overall, however, learning about these differences in patients who have a history of cardiovascular disease may affect patient care. It's best for people to talk with their health care clinicians about which of these medications is better for their individual needs.

"More research is needed to explore these results further because we don't know how they may fit into treating the general population."

The authors also note there was a slight statistical difference among participants who had low potassium levels, which is a risk for irregular heart rhythm, in the chlorthalidone (6%) group vs. the hydrochlorothiazide group (4.4%). There was also a tendency for more people with low potassium to be hospitalized in the chlorthalidone group (1.5%) compared to the hydrochlorothiazide group (1.1%). More research is needed to determine if these results are true differences or if they were caused by the way participants were recruited. In addition, how this applies to women or other populations is unclear.

More information: Link to session [abstract](#)

Provided by American Heart Association

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