

New research confirms milestone study on blood pressure meds

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New research supports the findings of a landmark drug comparison study published in 2002 in which a diuretic drug or "water pill" outperformed other medications for high blood pressure. A scientific team including investigators from The University of Texas Health Science Center at Houston reports the findings in the May 11 issue of the *Archives of Internal Medicine*.

About one in three adults in the United States has high blood pressure, which, according to the National Heart Lung and Blood Institute (NHLBI), can lead to a host of health problems including [heart failure](#), [coronary heart disease](#), stroke and [kidney failure](#).

The Antihypertensive and Lipid-Lowering Treatment to Prevent [Heart Attack](#) Trial (ALLHAT) is the largest high blood pressure treatment trial ever conducted and compared the impact of four classes of blood pressure drugs on 42,418 high-risk patients between 1994 and 2002. High blood pressure in adults is defined as 140/90 mm Hg or above.

"We looked at data since the trial ended to make sure our message hasn't changed. And, it hasn't. Diuretic drugs work as well or better than other medications in preventing heart failure," said Barry Davis, M.D., Ph.D., study co-author, Guy S. Parcel Chair in Public Health and director of the Coordinating Center for Clinical Trials (CCCT) at The University of Texas School of Public Health.

Diuretic drugs reduce blood pressure by clearing the body of excess fluid

and sodium. In the ALLHAT study, diuretic drugs were compared to angiotensin-converting enzyme (ACE) inhibitors that widen blood vessels and decrease resistance, calcium channel blockers that relax vessels by slowing the flow of calcium into the heart and alpha blockers, which also relax blood vessels.

In addition to providing superior protection against new-onset heart failure, the thiazide-type diuretic used in the ALLHAT study (chlorthalidone) was superior to the alpha blocker (doxazosin) in protecting against stroke and to the ACE inhibitor (lisinopril) in protecting against stroke in blacks. The calcium channel blocker used in the study was amlodipine.

The benefits of the diuretic drug, according to Davis, were experienced by men and women, people with diabetes and those without, people with and without normal renal function, as well as people with and without metabolic syndrome.

"Since the initial publication of the ALLHAT findings more than five years ago, many questions and some criticisms have been raised," said Jackson T. Wright, M.D., Ph.D., lead author and professor at Case Western Reserve University. "This paper reviews the initial findings in light of more detailed analyses of the ALLHAT data and data from more recent clinical trials. All confirm the initial ALLHAT findings that diuretics (in appropriate doses) remain unsurpassed in reducing blood pressure and preventing major complications of hypertension."

The researchers looked at a meta-analysis of the ALLHAT study and 28 other high blood pressure clinical studies in which patient data were combined and results compared, as well as new clinical trials including the Avoiding Cardiovascular Events Through Combination Therapy in Patients Living with Systolic Hypertension (ACCOMPLISH).

Davis said the large meta-analysis of antihypertensive treatment trials involving 162,341 patients confirmed initial findings of the ALLHAT study in regard to the benefits of the diuretic drug. The study was conducted by the Blood Pressure Lowering Treatment Trialists' Collaboration and results were published in *The Lancet* in 2003.

Following the publication of the ALLHAT findings, a Heart Failure Validation Study was conducted in which all hospitalized heart failure events were re-evaluated by independent reviewers. The study concluded that thiazide-type diuretics "would seem to provide better protection" against new-onset heart failure in high-risk people with high [blood pressure](#), the authors wrote in the paper.

ALLHAT researchers addressed concerns about the association of diuretics with new-onset diabetes and the impact of this development on heart disease. They concluded that new-onset diabetes associated with thiazides does not increase cardiovascular disease risk.

ALLHAT investigators also looked at patient trials that appeared to be at odds with components of the ALLHAT study and found that some differences could be explained by differences in study design, such as the dose of the diuretic administered. For example, in a letter to the editor published in the Mar. 12, 2009 issue of *The New England Journal of Medicine*, Davis indicated that doses of thiazide-type diuretics that are equivalent to those used in the ACCOMPLISH trial are less effective for the prevention of cardiovascular events than full doses of amlodipine (the other drug used in ACCOMPLISH) or doses of diuretics used in previous trials including ALLHAT.

"Evidence from subsequent analyses of ALLHAT and other clinical outcome trials confirm that neither alpha blockers, angiotensin-converting enzyme inhibitors, nor calcium channel blockers surpass thiazide-type diuretics (at appropriate dosage) as initial therapy for

reduction of cardiovascular or renal risk," the authors wrote.

Source: University of Texas Health Science Center at Houston ([news : web](#))

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