

# Report suggests allopurinol may lower blood pressure in teens with hypertension

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The drug allopurinol, which lowers uric acid levels, appears to reduce blood pressure in adolescents with newly diagnosed hypertension, according to a preliminary report in the August 27 issue of *JAMA*.

Hypertension is commonly associated with hyperuricemia (elevated blood level of uric acid, a by-product of normal chemical processes in the body and found in the urine and blood). Early research suggested uric acid had a causal role in hypertension, but an elevation of uric acid in hypertension could be a consequence of several factors, and hyperuricemia is not considered a true risk factor for hypertension, according to background information in the article. Recent studies have challenged this belief, including evidence supporting a causal role of uric acid in hypertension, as indicated from experimental studies in laboratory animals.

Daniel I. Feig, M.D., Ph.D., of the Baylor College of Medicine, Houston, and colleagues conducted a randomized, placebo-controlled "crossover" trial to determine whether lowering uric acid levels with the drug allopurinol would reduce blood pressure (BP) in hyperuricemic adolescents (age 11-17 years) with newly diagnosed hypertension. Thirty patients were randomly assigned to receive either allopurinol or placebo, twice daily for four weeks. This was followed by a two week "washout" period during which the patients received neither allopurinol nor placebo, after which they received the other therapy (allopurinol or placebo) they had not received earlier, for four more weeks.

Allopurinol treatment was associated with a significant decrease in casual and ambulatory systolic and diastolic BP. The average decrease in casual BP during allopurinol treatment was  $-6.9$  mm Hg for systolic and  $-5.1$  mm Hg for diastolic BP; for placebo, the respective changes were  $-2.0$  and  $-2.4$ . The average changes in 24-hour ambulatory BP during allopurinol were  $-6.3$  mm Hg, systolic;  $-4.6$ , diastolic BP. Systolic BP increased slightly during the placebo phase by  $0.8$  mm Hg and diastolic BP slightly decreased by  $0.3$ . The decrease in ambulatory BP directly correlated with allopurinol treatment. Twenty of the 30 participants achieved normal BP by casual and ambulatory criteria during the allopurinol phase, whereas only 1 of 30 achieved normal BP during the placebo phase.

"The results of this study represent a potentially new therapeutic approach, that of control of a biochemical cause of hypertension, rather than nonspecifically lowering elevated BP. Although not representing a fully developed therapeutic strategy, this study raises an alternative strategy that may prove to be more effective than currently available options," the authors write.

"Despite these findings, this clinical trial is a small one and allopurinol is not indicated for the treatment of hypertension in adolescents or other populations. The potential adverse effects of allopurinol, including gastrointestinal complaints and especially Stevens-Johnson syndrome [a severe, allergic reaction], make allopurinol an unattractive alternative to available antihypertensive medications. More clinical trials are needed to determine the reproducibility of the data and whether it can be generalized to the larger hypertensive population. Nevertheless, the observation that lowering uric acid can reduce BP in adolescents with newly diagnosed hypertension raises intriguing questions about its role in the pathogenesis of hypertension," the researchers conclude.

Source: JAMA and Archives Journals

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