

Study finds blood pressure drug tends to slow coronary disease

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Patients with clogged and hardened arteries who already have their blood pressure under control may benefit from an additional blood pressure-lowering medication, according to research from the Cleveland Clinic Coordinating Center for Clinical Research (C5Research).

The researchers found that the renin-inhibitor aliskiren tended to slow [coronary disease](#) progression and reduced the risk of death, stroke and heart attack in these patients by about 50 percent, compared to placebo, suggesting that patients with prehypertension may benefit from blood pressure lowering drugs.

The results of the AQUARIUS (Aliskerin Quantitative Atherosclerosis Regression Intravascular Ultrasound Study) trial were presented today at the European Society of Cardiology Congress 2013 and published simultaneously in the *Journal of the American Medical Association*.

Aliskiren affects the body's renin-angiotensin-aldosterone system (RAAS), a [hormone system](#) that regulates blood pressure and has been shown in prior studies to play an important role in the development of atherosclerosis, or the hardening or clogging of the [arteries](#). As a renin inhibitor, aliskiren partially blocks renin from triggering the RAAS process and is approved to treat hypertension to optimal guidelines of 140/90 mmHg, or the high end of the prehypertensive range.

AQUARIUS, a prospective, randomized, multicenter, double-blind clinical trial, was designed to test whether renin inhibition could slow or

reverse the progression of [coronary artery disease](#) in patients who have their blood pressure under control in the prehypertensive range. The study also looked at whether these patients would benefit from additional blood pressure-lowering medication, even though their blood pressure was considered to be under control.

A team of researchers led by Stephen J. Nicholls, M.D., Ph.D., senior consultant to Cleveland Clinic's C5Research and Professor of Cardiology and Deputy Director at the South Australian Health & Medical Research Institute (SAHMRI) in Adelaide, Australia, used intravascular ultrasonography (IVUS) to assess the degree of [coronary disease progression](#) in 458 patients at baseline and after 104 weeks of treatment with aliskiren or placebo. IVUS is a medical imaging technology in which a small ultrasound probe is inserted via a catheter into an artery, allowing physicians to examine the inside of arteries via sonogram.

"We found that aliskiren had a moderate effect on reducing blood pressure, substantially reduced renin activity, and produced a compensatory increase in renin concentration in the blood plasma," Dr. Nicholls said. "We also saw a bit of a trend toward regression in atherosclerosis. But our primary endpoint – a decrease in the volume of disease in the artery – did not meet statistical significance."

Although not a primary endpoint, the researchers did identify a decrease in major cardiovascular events including sudden death, stroke, and [heart attack](#) in patients on aliskiren. The data indicate that patients with heart disease and blood pressure in the prehypertensive range may benefit from more aggressive treatment of their blood pressure to get it lower than current guidelines suggest.

"We have to be cautious interpreting our results on cardiovascular events because this trial was not formally designed to look at these outcomes,"

said Steven Nissen, M.D., Chairman of the AQUARIUS trial executive committee and Chairman of the Robert and Suzanne Tomsich Department of Cardiovascular Medicine at Cleveland Clinic. "However, the data indicate that renin inhibition is safe in [patients](#) who have coronary artery disease and have their [blood pressure](#) under control, and it may have some beneficial cardiovascular effects."

Provided by Cleveland Clinic

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