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Contact: Karen Richardson

[krchrdsn@wfubmc.edu](mailto:krchrdsn@wfubmc.edu)

336-716-4587

[Wake Forest University Baptist Medical Center](#)

## Some hypertension drugs may help reduce dementia risk

WINSTON-SALEM, N.C. – Some high blood pressure medicines may help protect older adults from declines in memory and other cognitive function, according to new research from Wake Forest University School of Medicine, reported today at the annual meeting of the American Geriatrics Society in Seattle.

The drugs that researchers believe are protective are part of a class known as ACE inhibitors – specifically those types that reach the brain and may help reduce the inflammation that might contribute to Alzheimer's disease.

"For older adults who are going to take an ACE inhibitor drug for blood pressure control, it makes sense for their doctors to prescribe one that goes into the brain," said Kaycee Sink, M.D., M.A.S., lead researcher and an assistant professor of internal medicine – gerontology.

Some ACE (angiotensin-converting enzyme) inhibitors are known as centrally acting because they can cross the blood brain barrier, a specialized system of tiny blood vessels that protects the brain from harmful substances in the blood stream. Centrally acting drugs include captopril (Capoten®), fosinopril (Monopril®), lisinopril (Prinivil® or Zestri®), perindopril (Aceon®), ramipril (Altace®) and trandolapril (Mavik®).

The study found a link between taking centrally active ACE inhibitors and lower rates of mental decline as measured by the Modified Mini-Mental State Exam, a test that evaluates memory, language, abstract reasoning and other cognitive functions. For each year that participants were exposed to ACE inhibitors that cross the blood brain barrier, the decline in test results was 50 percent lower than the decline in people taking other kinds of high blood pressure pills.

The researchers also found that non-centrally active ACE inhibitors were associated with a trend towards an increased risk of dementia. However, the results were not statistically significant, which means that they could have occurred by chance. Dementia was diagnosed by a panel of physicians after reviewing results of magnetic resonance imaging and other tests.

"These results suggest that there is more to treating blood pressure than achieving a goal of 140/80," said Sink. "Which drug you choose for blood pressure control can have broader implications. We know that ACE inhibitors protect against heart failure and kidney failure, and now there is evidence that some of them may also protect against dementia."

Sink said the effects may be related to reducing inflammation in the brain.

"The hypothesis for how they may slow cognitive decline is that they are decreasing inflammation in the brain, and we know that inflammation is important in the development of Alzheimer's disease," she said.

The researchers analyzed data from the Cardiovascular Health Study, a long-term study of cardiovascular risk factors that involved 5,888 people over 65 years old from Forsyth County in North Carolina, Sacramento County, Calif., Pittsburgh, Pa., and Washington County, Md. The mean age of participants was 75 years old and most participants (64 percent) were women.

They specifically looked at 1,074 study participants who were free of dementia when they entered the study and who were being treated for high blood pressure. They evaluated whether exposure to ACE inhibitors in general – and to the centrally active versus non-centrally active drugs – was related to dementia and cognitive decline.

Compared to other anti-hypertensive drugs, there was no association between exposure to ACE inhibitors as a class and the risk of dementia. The benefits clearly came from taking the centrally active drugs.

"We need to confirm the results in a study in which people are randomly selected to receive either ACE inhibitors that are centrally active or those that aren't," said Sink. "Hypertension is a risk factor for dementia, so it's important to know if the type of drug pressure medication a person takes can cut that risk."

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The research is supported by the National Heart, Lung and Blood Institute, the Pepper Older Adults Independence Center, and the Hartford Geriatrics Health Outcomes Research Scholars Program. Co-researchers were Xiaoyan Leng, Ph.D., Jeff Williamson, M.D., M.H.S., Steve Kritchevsky, Ph.D., Hal Atkinson, M.D., Mike Robbins, Ph.D., and David Goff, M.D., Ph.D., all from Wake Forest, Kristine Yaffe, M.D., from the University of California, Bruce Psaty, M.D.,

Ph.D., from the University of Washington, Lewis Kuller, M.D., Dr.P.H., from the University of Pittsburgh, and Sevil Yasar, M.D., from Johns Hopkins University.

Media Contacts: Karen Richardson, [krchrdsn@wfubmc.edu](mailto:krchrdsn@wfubmc.edu); Shannon Koontz, [shkoontz@wfubmc.edu](mailto:shkoontz@wfubmc.edu); at 336-716-4587

Wake Forest University Baptist Medical Center is an academic health system comprised of North Carolina Baptist Hospital and Wake Forest University Health Sciences, which operates the university's School of Medicine. U.S. News & World Report ranks Wake Forest University School of Medicine 18th in family medicine, 20th in geriatrics, 25th in primary care and 41st in research among the nation's medical schools. It ranks 35th in research funding by the National Institutes of Health. Almost 150 members of the medical school faculty are listed in Best Doctors in America.

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