Damian McNamara
June 8, 2022

Study Explores Potassium's Protective Effect on Salt Excretion in Post-Menopausal, Hypertensive Hispanic Women

In a study recently published in the prestigious American Heart Association journal *Hypertension,* researchers with the University of Miami Miller School of Medicine took a closer look at the nature of natriuresis, or salt excretion, caused by potassium in post-menopausal Hispanic women with hypertension. They found that potassium effectively reduced total body sodium in participants, regardless of whether people had high blood pressure that was more sensitive or resistant to sodium concentrations.

Potassium has well-accepted benefits on hypertension, but how it works is not well understood, particularly in these higher-risk patients.

Findings suggest that natriuresis likely contributes to the beneficial effect of potassium on hypertension.

“It's an understudied population, it's a growing population, and it’s a population that tends to be hypertensive and experience consequences of hypertension,” said lead study investigator Richard A. Preston, M.D., M.S.P.H., M.B.A., a nephrology specialist and chief of the Division of Clinical Pharmacology in the Department of Medicine.

“This study provides information that is relevant to public health. How does potassium lower blood pressure? Why does it reduce cardiovascular risk?” Dr. Preston said. “One possibility is potassium causes the kidney to eliminate more sodium, and we know that the excess sodium can lead to hypertension.”

Effects of Potassium Intake

Dr. Preston and his colleagues evaluated 19 post-menopausal Hispanic women over a 16-day inpatient study conducted in the clinical pharmacology research unit. The women ate a low-sodium diet for eight days, then switched to a high-sodium diet for the remaining eight days.

To study the acute effects of potassium intake, participants drank 35 mmol of a potassium preparation, about the equivalent of potassium in a potassium-enriched Western-diet meal or in three large bananas.

Comparing Potassium's and Diuretic's Performance

The investigators also compared potassium’s performance to a 50-mg dose of hydrochlorothiazide, a diuretic commonly used to

lower high blood pressure. The liquid potassium was about 37% as effective as the medication in excreting sodium during a high sodium challenge. This finding suggests that natriuresis is likely contributing to the beneficial effect of potassium on hypertension.

According to the study, published in the April 2022 journal, the effect did not vary significantly after five hours depending on whether the diet was low or high in sodium. This result might reflect how well the body adjusts and excretes more sodium, for example after a high-sodium meal, the researchers noted.

Collaborative Environment Fosters Original Research

In addition to the research team of the Division of Clinical Pharmacology, Dr. Preston also credits the collaborative environment at the Miller School.

“The Katz Family Division of Nephrology and Hypertension and the Clinical and Translational Institute help to provide an environment supportive for this type of original research,” he said. “It’s also about the environment created by such excellent researchers in kidney disease and hypertension. It also helps to have a lot of large population of hypertensive, post-menopausal women to study.”

More research is warranted on how potassium induces natriuresis in humans, Dr. Preston added. It remains unknown, for example, how well potassium accomplishes the same feat of triggering salt excretion when consumed in a complex meal.

Dr. Preston’s University of Miami colleagues on the study include David Afshartous, Evelyn V. Caizapanta, Barry J. Materson, Rolando Rodco, Eileen Alonso, and Alberto B. Alonso.

Damian McNamara
June 8, 2022

Content Type Article