SODIUM AND POTASSIUM INTAKE AND RISK OF CARDIOVASCULAR EVENTS AND ALL-CAUSE MORTALITY: THE ROTTERDAM STUDY
Johanna M Geleijnse, Diederick E Grobbee, Albert Hofman, Jacqueline CM Witteman. Human Nutrition & Epidemiology, Wageningen University, Wageningen, Netherlands; Epidemiology & Biostatistics, Erasmus Medical Center Rotterdam, Rotterdam, Netherlands; Julius Center for Health Sciences and Primary Care, University Medical Center Utrecht, Utrecht, Netherlands.

Background: Dietary sodium and potassium have been related to blood pressure, but their effect on mortality and cardiovascular events has not yet been established. We examined the risk of cardiovascular events and mortality for dietary and urinary measures of sodium and potassium intake in an unselected older population.

Methods: The present analysis is a nested case-control study within the prospective, population-based Rotterdam Study among 7983 men and women aged 55 years and over. From 5531 subjects with adequate blood pressure readings and urinary samples, 1448 subjects were randomly selected, as well as 795 subjects who died during follow-up (including 217 cardiovascular deaths), 206 subjects with an incident myocardial infarction, and 181 subjects with an incident stroke. Urinary electrolyte/creatinine ratios, sodium/potassium ratio and 24h-urinary electrolyte excretion were estimated from one timed overnight urine sample. In addition, dietary electrolyte intakes and total energy intake were estimated by food frequency questionnaire in 78% of the subjects. Data on cause-specific mortality and incident cardiovascular events were provided by general practitioners.

Results: In the cohort as a whole, no significant relationship was observed between urinary or dietary estimates of sodium and potassium intake and all-cause mortality, cardiovascular mortality, incident myocardial infarction or incident stroke. A direct relationship between sodium intake and all-cause mortality, cardiovascular mortality, incident myocardial infarction and incident stroke. A direct relationship between sodium intake and all-cause mortality was observed in a subgroup of 1088 subjects initially free of cardiovascular disease and hypertension, with a relative risk of 1.22 (95% confidence interval: 1.04-1.44) per standard deviation (1-SD) increase in urinary sodium/creatinine ratio, and a relative risk of 1.24 (1.05-1.48) per 1-SD in 24h-urinary sodium excretion. Sodium intake estimated by food frequency questionnaire was not associated with mortality. Measures of potassium intake were not significantly related to any of the outcomes.

Conclusion: Our findings suggest that variations in dietary sodium and potassium within the range commonly observed in Westernized societies have no material effect on the occurrence of cardiovascular events and mortality at old age.

Key Words: Salt, mortality, population-based

CALCIUM, BONE MINERAL DENSITY AND BLOOD PRESSURE
Klaus Kisters, Faruk Tokmak, Uta Hillebrandt, Martin Hausberg, Markus A. Kosch. Department of Internal Medicine I, St. Anna Hospital, Herne, Germany; Department of Internal Medicine D, University of Muenster, Muenster, Germany.

Numerous studies have reported abnormalities in calcium metabolism in human hypertension. However, bone is the largest store of calcium in the body and a loss of mineralization and calcium in connection with an increased 24-h urinary calcium excretion may occur. In this context it can be speculated that in patients with essential hypertension and lowered bone mineral density the disturbances in calcium metabolism are more pronounced. Especially in hypertensive women with osteoporosis, these factors are of special interest.

In this context measurements of skeletal status after renal transplantation by quantitative ultrasound were performed in 30 patients (12 women) and 25 controls. Bone stiffness was calculated from speed of sound and broadband ultrasound attenuation and no correlation to age, cumulative steroid dose, plasma calcium, or time after transplantation was noted.

In a group of hypertensive women after renal transplantation with poor blood pressure control, the age corrected bone stiffness was measured at 65.5 ± 18.7 % at the right calcaneus, and 77.7 ± 19.8 % at the left calcaneus. These values were significantly reduced as compared to to the entire group of transplant patients (84.8 ± 24.8 % and 87.0 ± 28.1 %, right and left calcaneus, respectively). In this context it can be speculated that loss of bone mineral density and hypertension may be connected by abnormalities in calcium metabolism in women.

Key Words: Calcium, hypertension, bone mineral density