| **Study** | **Participants** | **Exposure** | **Intake Status Ascertainment** | **Results** |
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| Mills, 2016120; He, 2016121; Yang, 2014122; Lash, 2009123  Location: US  Setting: Community  Design: Prospective Cohort study  Study Name: The Chronic Renal Insufficiency Cohort (CRIC) Study  . | Study of: Adults N: 1858  % Male: Q1 35.0, Q2 49.9, Q3 61.3 Q4 76.0 Mean Age/Range/Age at Baseline: Q1 mean 57.2 (SD 10.9) Q2 mean 57.6 (SD 11.3) Q3 mean 58.2 (SD 10.8) Q4 mean 58.0 (SD 10.6) years Race: Q1: White 38.6% Black 51.4% Other 10.0 %; Q2: White 45.6% Black 44.0% Other 10.3%; Q3 White 50.6% Black 37.4% Other 12.0%; Q4 White 54.3% Black 32.9% Other 12.8% Systolic BP: Q1: mean 125.6 (SD 21.7); Q2 mean 126.3 (SD 20.9); Q3 mean 128.1 (SD 21.7); Q4 mean 132.3 (SD 22.4) mmHg Diastolic BP: Q1: mean 70.7 ( SD 12.7); Q2 mean 71.0 (SD 12.8); Q3: mean 71.4 (SD 12.3); Q4: mean 72.7 (SD 13.0) mmHg Magnesium: NR Calcium: NR Other Minerals: NR Mean BMI: Q1: mean 31.7 (SD 8.0); Q2 mean 32.1 (SD 7.5); Q3 mean 31.9 (SD 7.3); Q4 mean 31.8 (SD 7.5) kg/m^2 % with Hypertension: Q1 80.2; Q2 86.5; Q3 86.7; Q4 90.8 % with history of CVD: Q1 27.3; Q2 30.0; Q3 34.9; Q4; 39.7 % with Type 2 diabetes: Q1 37.7; Q2 43.8; Q3 49.3; Q4 60.3 % with Kidney disease: NR % with history of Kidney stones: NR  Inclusion: Participant aged 21 to 74 years with mild to moderate CKD designed to identify and examine risk factors for CKD progression and development of CVD in those with CKD, who met age-specific estimated glomerular filtration rate (eGFR) criteria of 20 to 70 mL/min/1.73 m^2 were included. Exclusion: People with a history of kidney transplant, dialysis for at least 1 month, glomerulonephritis requiring immunosuppression, advanced heart failure, cirrhosis, or polycystic kidney disease were excluded. | Exposure Type: 24 h urinary sodium excretion calibrated to mean urinary creatinine excretion of 1569 mg/24 hours in Exposure Unit: per 1000 mg/24 h  Duration(in months): 163.2 (6.8 years) Exposure to Follow Up Time: NR  Dose format: NR NR, Dose: NR for no diabetes | Sodium measure: Multiple 24-hour urine analysis with validation Best sodium measure recorded: 3 times, 1 year apart CVD, CHD, stroke, kidney stones/disease Outcomes-Method of ascertainment: Hospital records, Interview with participant or proxy, followup visit | Composite CVD (Defined as congestive heart failure, stroke, and myocardial infarction) (per 1000 mg/24 h/Outcome): Median 6.8 years FU NR cases: NR, total: 1854 Adjustment: Age, sex, race, clinic site, education, waist circumference, lean body mass index, body mass index, cigarette smoking, alcohol drinking, physical activity, LDL-cholesterol, glucose, history of CVD, antidiabetic medications, lipid-lowering medications, diuretics, renin-angiotensin system blocking agents, and other antihypertensive medications, urinary creatinine excretion, baseline eGFR Among participants without diabetes, greater sodium excretion was associated with a non-significant increased risk of compostive CVD.  Congestive Heart Failure (Congestive heart failure was identified by hospital admission for new or worsening CHF signs and symptoms, in addition to diminished cardiac output) (per 1000 mg/24 h/Outcome): Median 6.8 years FU NR cases: NR, total: 1856 Adjustment: Age, sex, race, clinic site, education, waist circumference, lean body mass index, body mass index, cigarette smoking, alcohol drinking, physical activity, LDL-cholesterol, glucose, history of CVD, antidiabetic medications, lipid-lowering medications, diuretics, renin-angiotensin system blocking agents, and other antihypertensive medications, urinary creatinine excretion, baseline eGFR Among participants without diabetes, greater sodium excretion was associated with a non-significant increased risk of compostive CVD.  Myocardial Infarction (Myocardial infarction was defined by characteristic changes in troponin and creatinekinase–MB levels, symptoms of myocardial ischemia, electrocardiogram changes, or new fixed profusion abnormalities.) (per 1000 mg/24 h/Outcome): Median 6.8 years FU NR cases: NR, total: 1858 Adjustment: Age, sex, race, clinic site, education, waist circumference, lean body mass index, body mass index, cigarette smoking, alcohol drinking, physical activity, LDL-cholesterol, glucose, history of CVD, antidiabetic medications, lipid-lowering medications, diuretics, renin-angiotensin system blocking agents, and other antihypertensive medications, urinary creatinine excretion, baseline eGFR Among participants without diabetes, greater sodium excretion was associated with a non-significant increased risk of compostive CVD.  Stroke (Stroke was defined as rapid onset of neurologic deficit, headache, or other nonvascular cause and clinically relevant lesion on brain imaging for longer than 24 hours or deathwithin24 hours.) (per 1000 mg/24 h/Outcome): Median 6.8 years FU NR cases: NR, total: 1858 Adjustment: Age, sex, race, clinic site, education, waist circumference, lean body mass index, body mass index, cigarette smoking, alcohol drinking, physical activity, LDL-cholesterol, glucose, history of CVD, antidiabetic medications, lipid-lowering medications, diuretics, renin-angiotensin system blocking agents, and other antihypertensive medications, urinary creatinine excretion, baseline eGFR Among participants without diabetes, greater sodium excretion was associated with a non-significant increased risk of compostive CVD. |
| O'Donnell, 2014124  Location: 17 low-, middle-, and high-income countries  Setting: Community  Design: Prospective Cohort study  Study Name: The Prospective Urban and Rural Epidemiology (PURE) study  . | Study of: Adults N: 101945  % Male: 42.5 Mean Age/Range/Age at Baseline: mean 51.01 (SD 9.72) years Race: 48.4 Asian Systolic BP: mean 131.7 (SD 22.30) Diastolic BP: mean 82.24 (SD 15.65) Magnesium: NR Calcium: NR Other Minerals: NR Mean BMI: NR % with Hypertension: 41.5 % with history of CVD: 8.3 % with Type 2 diabetes: 9.1 % with Kidney disease: NR % with history of Kidney stones: NR  Inclusion: Study selected a number of countries representing different economic levels, and selected urban and rural communities based on predetermined guidelines. Households and individuals were selected to fulfill maximum representativeness. Selected individuals aged between 35-70. Exclusion: Excluded those who refused to participate. | Exposure Type: Estimated Potassium Excretion (Kawasaki equation) Exposure Unit: g/day  Exposure Type: Estimated Sodium Excretion (Kawasaki equation) Exposure Unit: g/day  Duration: NR Exposure to Follow Up Time: mean 3.7 years  Dose format: range G1, Dose: <3 G2, Dose: 3-5.99 G3, Dose: >=6 Q1, Dose: <1.50 Q2, Dose: 1.50-1.99 Q3, Dose: 2.00-2.49 Q4, Dose: 2.50-3.00 Q5, Dose: >3.00 | Sodium measure: Partial or spot urine with validated prediction equation Best sodium measure recorded: collected one morning fasting midstream urine sample (Kawasaki formula) Sodium, Method of Validation: A validation study using the Kawasaki formula with actual 24-hour urine collection in 1,083 people from 11 countries showed an intraclass correlation coefficient of 0.71 (95% confidence interval (CI), 0.65 to 0.76). Potassium measure: Partial or spot urine with validated prediction equation\_1 Best potassium measure recorded: collected one morning fasting midstream urine sample (Kawasaki formula) Potassium, Method of Validation: A validation study using the Kawasaki formula with actual 24-hour urine collection in 1,083 people from 11 countries showed an intraclass correlation coefficient of 0.71 (95% confidence interval (CI), 0.65 to 0.76). Mortality Outcomes-Method of Ascertainment: Standardized case-report forms (adjudicated by trained physicians using standardized definitions, Contact family members, Captured best available information from reliable sources CVD, CHD, stroke, kidney stones/disease Outcomes-Method of ascertainment: Interview with participant or proxy, Standardized case-report forms (adjudicated by trained physicians using standardized definitions), Captured best available information from reliable sources | All-cause mortality and Major Cardiovascular Event (g/day/Outcome): Mean 3.7 y FU G1 cases: NR, total: 10810, G2 cases: NR, total: 67794, G3 cases: NR, total: 23341 Adjustment: All analyses adjusted for age, sex, education, ethnicity (Asian versus non-Asian), alcohol intake, diabetes mellitus, body mass index, a history of cardiovascular events and current smoking, using logistic regression with generalized estimating equation models. The association between estimated sodium excretion and the composite outcome was strongest among participants with hypertension, with an increased risk at an estimated sodium excretion of 6.00 g or more per day.  All-cause mortality and Major Cardiovascular Event (g/day/Outcome): Mean 3.7 y FU Q1 cases: NR, total: 14262, Q2 cases: NR, total: 31466, Q3 cases: NR, total: 30956, Q4 cases: NR, total: 17171, Q5 cases: NR, total: 8032 Adjustment: All analyses adjusted for age, sex, education, ethnicity (Asian versus non-Asian), alcohol intake, diabetes mellitus, body mass index, a history of cardiovascular events and current smoking, using logistic regression with generalized estimating equation models. No significant association between potassium intake and risk of death and major CVD events among those without diabetes. |