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### **Dietary Acid Load and Incident Chronic Kidney Disease: Results from the ARIC Study.**

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#### **BACKGROUND:**

Higher dietary acid load can result in metabolic acidosis and is associated with faster kidney disease progression in patients with chronic kidney disease (CKD). However, the relationship between dietary acid load and incident CKD has not been evaluated.

#### **METHODS:**

We conducted prospective analyses of the Atherosclerosis Risk in Communities study participants without CKD at baseline (1987-1989, n = 15,055). Dietary acid load was estimated using the equation for potential renal acid load by Remer and Manz, incorporating dietary intake data from a food frequency questionnaire. Incident CKD was assessed from baseline through 2010 and defined as estimated glomerular filtration rate (eGFR) <60 ml/min/1.73 m<sup>2</sup> accompanied by 25% eGFR decline, CKD-related hospitalization or death or end-stage renal disease identified by linkage to the US Renal Data System registry.

#### **RESULTS:**

In the overall study population, 55% were female, 26% were African-American and mean age at baseline was 54 years. During a median follow-up of 21 years, there were 2,351 (15.6%) incident CKD cases. After adjusting for demographics (age, sex, race-center), established risk factors (diabetes status, hypertension status, overweight/obese status, smoking status, education level, physical activity), caloric intake and baseline eGFR, higher dietary acid load were associated with higher risk of incident CKD (hazard ratio [HR] for quartile 4 vs. 1: 1.13, 95% CI 1.01-1.28, p for trend = 0.02; HR per interquartile range increase: 1.06, 95% CI 1.00-1.11, p = 0.04).

#### **CONCLUSION:**

Dietary acid load is associated with incident CKD in a population-based sample. These data suggest a potential avenue for CKD risk reduction through diet.