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1: [Am J Kidney Dis.](#) 2006 May;47(5):780-9.

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Association of prevalent hypertension with 24-hour urinary excretion of calcium, citrate, and other factors.

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BACKGROUND: The relation between hypertension and the urinary excretion of calcium, citrate, and other factors is unclear. It has been proposed that increased urinary calcium excretion is a central feature of essential hypertension. Metabolic acidosis also may be associated with hypertension and decreases urinary citrate levels. **METHODS:** To compare the urine composition of individuals with and without hypertension, we studied 24-hour urinary excretion of calcium, citrate, oxalate, uric acid, sodium, magnesium, potassium, phosphorus, and creatinine and pH in a subset of participants with and without nephrolithiasis in the Nurses' Health Study I (older women; N = 1,284), Nurses' Health Study II (younger women; N = 952), and the Health Professionals Follow-up Study (men; N = 788). Logistic regression models adjusted for age, weight, dietary intake, and urinary factors. **RESULTS:** In participants with and without nephrolithiasis, citrate was the only urinary factor consistently related to hypertension. Compared with those in the lowest quartile of urinary citrate excretion, multivariate odds ratios of prevalent hypertension in the highest quartile were 0.37 (95% confidence interval [CI], 0.24 to 0.55; P trend < 0.001) for older women, 0.54 (95% CI, 0.32 to 0.92; P trend = 0.03) for younger women, and 0.27 (95% CI, 0.16 to 0.45; P trend < 0.001) for men. Urinary calcium levels were not related consistently to hypertension. Excluding participants with single 24-hour urine collections and those administered thiazide diuretics or angiotensin-converting enzyme inhibitors did not change the results. **CONCLUSION:** Lower urinary citrate excretion is associated independently with prevalent hypertension. Factors that regulate urinary citrate excretion may play a role in hypertension.

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