

## Article of Interest

Roush G, et al. Dose doubling, relative potency, and dose equivalence of potassium-sparing diuretics affecting blood pressure and potassium: systematic review and meta-analyses. *Journal of Hypertension*. 2016. ([Click to Access](#))

## Context and Study Objective

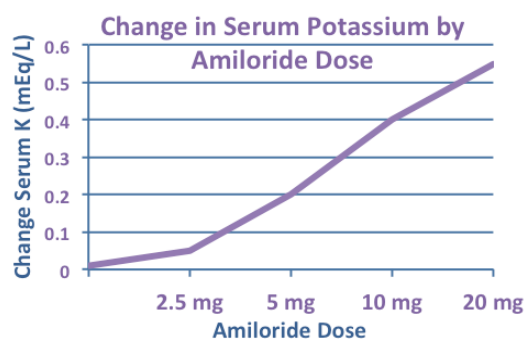
Diuretic-induced hypokalemia is common among the elderly. Supplementation with potassium chloride (KCl) frequently results in dyspepsia and fails to lower blood pressure (BP) at low doses. In this paper, Roush sought to characterize the effect of the potassium-sparing diuretic amiloride on serum potassium and BP.

## Design, Setting, and Participants

PubMed studies eligible for this meta-analysis included placebo-controlled randomized trials comparing regimens of a diuretic to a diuretic plus amiloride. Trial duration of one month or greater was required. BP was measured in the office setting.

## Results

- Eight studies were eligible. They were published between 1983-2014 and included 506 individuals. 53% men. Mean age 51. Approximate office systolic BP was 150 mm Hg prior to treatment. Comorbidities included diabetes, heart failure, and kidney disease (among others). Diuretic, angiotensin converting enzyme, and angiotensin receptor blocker use was identical between arms in a given study.
- Top Figure: Serum potassium rose linearly with increasing amiloride doses.
- Bottom Figure: Amiloride reduced BP in a dose dependent manner.



## Clinical Perspective

- I find the potassium-sparing diuretic amiloride to be underutilized. Not only can potassium chloride cause abdominal discomfort, but certain tablet formulations are difficult to swallow. Moreover, potassium chloride has no antihypertensive properties at low doses.
- In contrast, my patients don't report similar gastrointestinal symptoms or difficulty swallowing amiloride. Also, amiloride likely lowers BP at doses of 10mg and above.
- I commonly prescribe 10 mg which raises serum potassium levels by about 0.3 mEq/L, an adequate dose to correct diuretic-induced hypokalemia. I do find an effect on BP, but not as large as this meta-analysis would suggest.
- Unfortunately, amiloride is only available as 5 mg tablets, thus higher doses increase pill count. The combination form (amiloride 5- hydrochlorothiazide 50) is ill advised as it contains too little amiloride for the hydrochlorothiazide dose.
- If a more potent potassium-sparing diuretic is required, spironolactone will both increase serum potassium levels and significantly lower BP. See this previous [newsletter](#) for details.
- Disclosures: I have no conflicts of interest.

