

# Letter to the Editor

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## Response by Johnson and Söderholm to Letter Regarding Article, “Serum Potassium Is Positively Associated With Stroke and Mortality in the Large, Population-Based Malmö Preventive Project Cohort”

### *In Response:*

We thank Dr Spence for his interest in our article describing a positive association between serum potassium and stroke incidence and mortality in the MPP (Malmö Preventive Project) cohort,<sup>1</sup> and we are in agreement with him that serum potassium measures are influenced both by renal function and by medications that block the renin–angiotensin–aldosterone system.

In the article, we have made efforts to take renal function into account in the following ways. Our multivariable model includes serum creatinine as well as age, sex, and body mass index, and a subanalysis was performed that stratified on estimated glomerular filtration rate, as estimated by the Cockcroft–Gault formula. The results were not substantially different across estimated glomerular filtration rate tertiles and were therefore not written out in the article (hazard ratio, 1.29 [95% confidence interval, 1.04–1.60];  $P=0.02$  in tertile 1; hazard ratio, 1.36 [95% confidence interval, 1.08–1.70];  $P=0.008$  in tertile 2; and hazard ratio, 1.31 [95% confidence interval, 1.03–1.68];  $P=0.03$  in tertile 3). There was no evidence of a statistical interaction between serum creatinine and serum potassium as regards to stroke risk ( $P=0.69$ ).

The MPP cohort was relatively young at baseline, and screening was undertaken at a time when antihypertensive medications were less commonly used than they are now. Angiotensin-converting

enzyme inhibitors were introduced in the mid 1980s, at which time 93% of the baseline examinations, including the measurement of serum potassium had already been performed, and these measurements were thus not influenced by angiotensin-converting enzyme inhibitor use. Furthermore, we performed a subanalysis wherein all subjects who reported use of an antihypertensive drug or a diuretic (only 5.0% of the study population) were excluded. This did not alter the results.

For these reasons, we think the results not to be subject to confounding by renal function or use of diuretics or renin–angiotensin–aldosterone system-blocking agents, and we consider this, as well as the relatively young mean age of the cohort to be strengths of the study.

### Disclosures

None.

**Linda S. Johnson, MD, PhD**  
**Martin Söderholm, MD, PhD**  
*Department of Clinical Sciences*  
*Malmö Skåne University Hospital*  
*Lund University*  
*Sweden*

### References

1. Johnson LS, Mattsson N, Sajadieh A, Wollmer P, Söderholm M. Serum potassium is positively associated with stroke and mortality in the large, population-based Malmö Preventive Project cohort. *Stroke*. 2017;48:2973–2978. doi: 10.1161/STROKEAHA.117.018148.

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Linda S. Johnson and Martin Söderholm

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