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P234 -The association between serum sodium concentration and albuminuria: a retrospective cohort study

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Introduction:

Albuminuria is an early marker of renal damage and a sensitive predictor of adverse cardiovascular outcomes. Randomised clinical trials consistently demonstrate that lowering dietary salt intake reduces albuminuria. The mechanisms underlying this effect are uncertain, but small increases in serum sodium concentration may be important. This study investigated the hypothesis that higher serum sodium is a risk factor for albuminuria.

Methods:

This was a retrospective cohort study using primary care data from the Royal College of General Practitioners (RCGP) Research and Surveillance Centre (RSC) network. The study cohort consisted of 47,294 individuals, not known to have albuminuria, who had a urinary albumin:creatinine ratio (ACR) performed between April 2010 and March 2015. Exclusion criteria were: missing or abnormal serum sodium at baseline (defined as < 135 or > 146 mmol/L); age less than 18 years; diabetes mellitus; decompensated liver disease; heart failure; and stage 5 chronic kidney disease (CKD). Albuminuria was defined as an ACR ≥ 3 mg/mmol.

Results:

Over five years, albuminuria was identified in 8,329 (17.7 %) of the cohort. There was a significant 'U-shaped' relationship between serum sodium concentration and the primary outcome, after adjustment for known risk factors (see Figure). There was no association between serum sodium and blood pressure, and the addition of systolic and diastolic measurement to the primary model did not affect the relationship.

Conclusion:

The finding of a positive association between higher serum sodium concentrations and albuminuria is in support of the hypothesis but does not establish causation. The inverse relationship between serum sodium and albuminuria at lower concentrations warrants further explanation.