CAFFEINE LEVELS ARE INVERSELY ASSOCIATED WITH KALEMIA IN WOMEN: A POPULATION-BASED STUDY

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Objective

Previous case reports have described the association between excessive caffeine consumption and hypokalemia. Population-based studies are however lacking and most studies do not measure blood caffeine levels. We examined the association of plasma caffeine levels with potassium in a population-based sample.

Methods

The Swiss Kidney Project on Genes in Hypertension is a family-based multi-centre (Lausanne, Bern, Geneva) population-based study that examines the genetic determinants of renal function and blood pressure. We measured plasma caffeine and potassium levels. Multilevel mixed-effect linear regression was used to examine the association of plasma caffeine tertiles with blood and 24-hour urinary potassium excretion, while taking familial correlations into account. Models were stratified by sex and adjusted for age, body mass index, study centre, urinary creatinine excretion, urinary sodium and magnesium excretion, smoking, and diuretic use.

Conclusions

We found an inverse association between plasma potassium and caffeine levels and a positive association between 24-hour urinary potassium excretion and caffeine levels uniquely among women, suggesting that this association may be influenced by sex hormones.

Results

The 536 men and 592 women included in this analysis had a median plasma caffeine level of 556.5 and 624.0 ng/ml, respectively, and a mean (SD) plasma potassium level of 4.1 (0.3) mmol/l.

Figure 1. Association between serum potassium (mmol/l) and caffeine tertiles using linear regression analysis among men and women

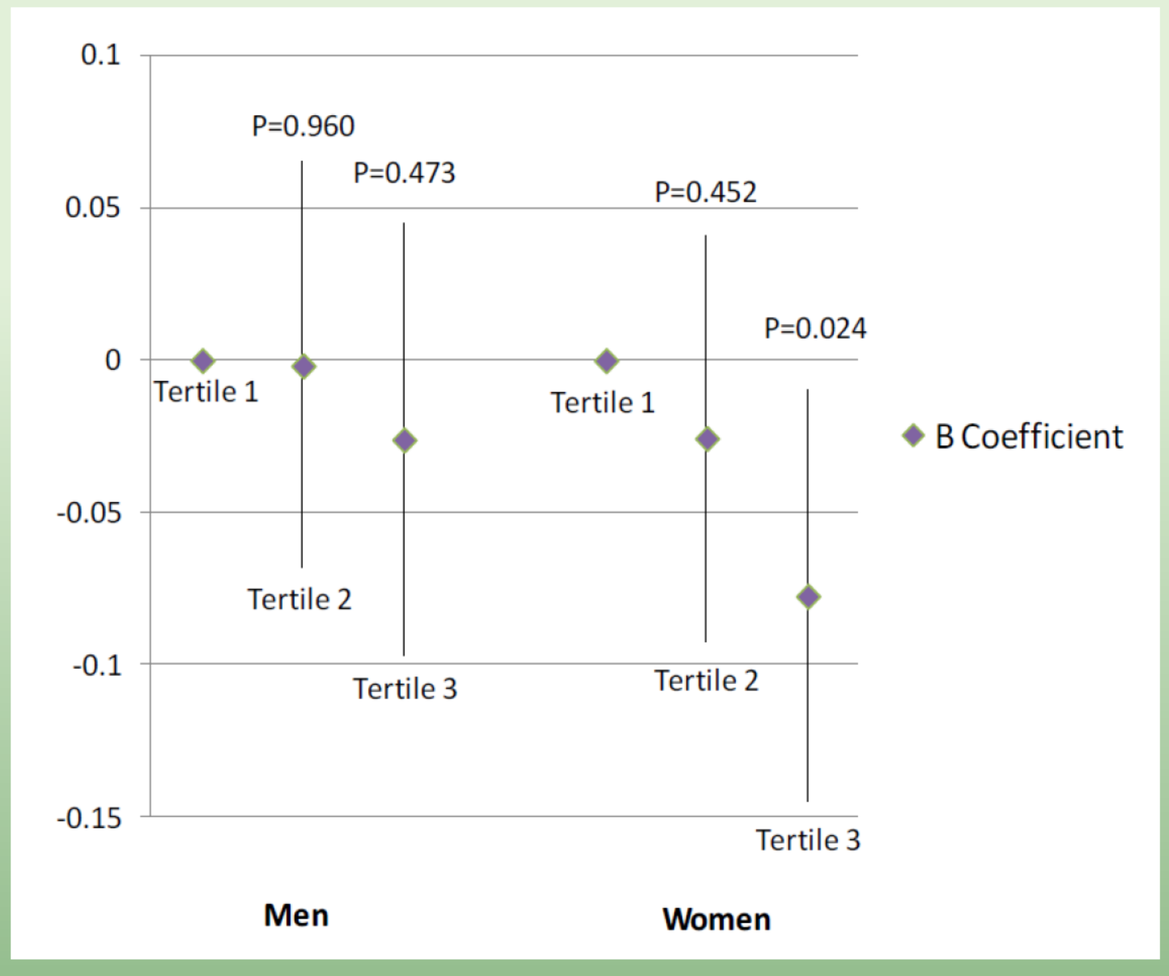
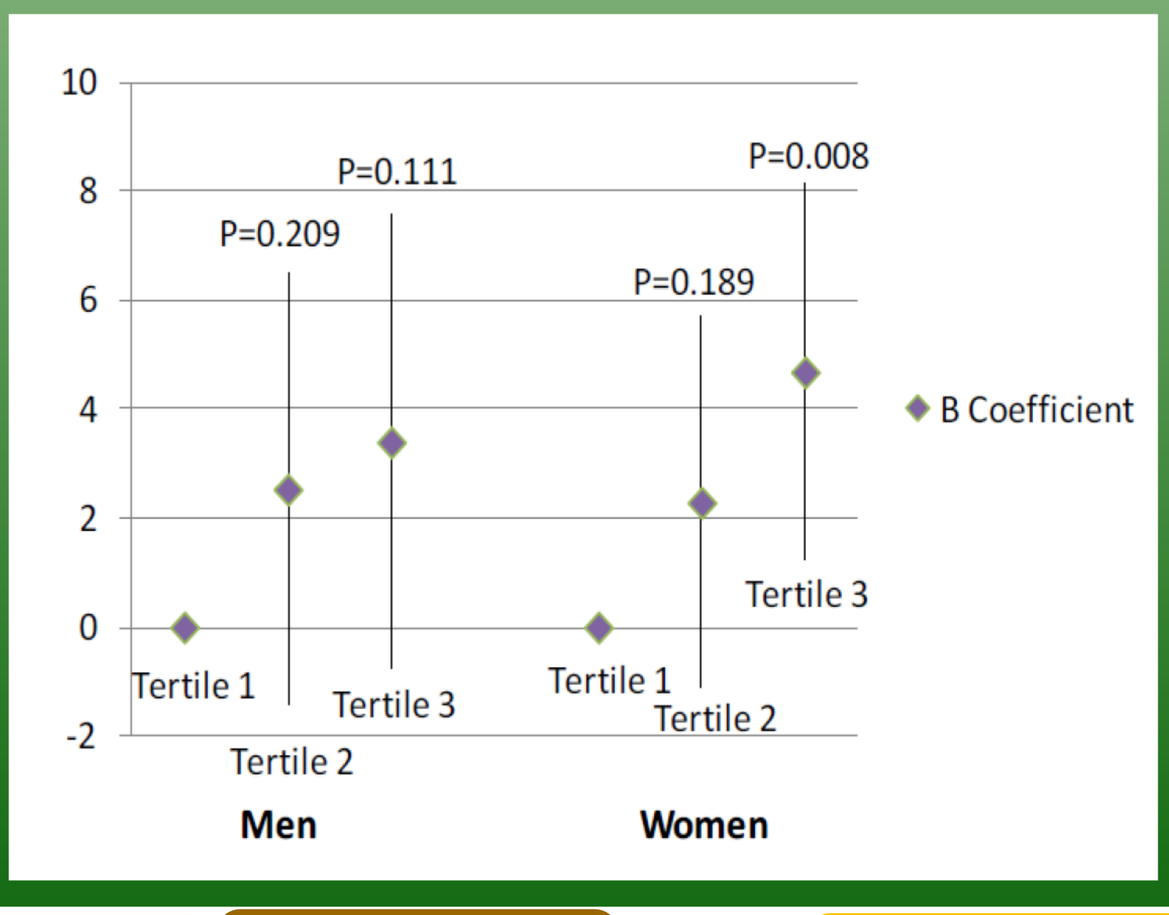


Figure 2. Association between 24-hour urinary potassium excretion (mmol) and caffeine tertiles using linear regression analysis among men and women



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