



## P46: ASSOCIATION OF CALCEMIA AND SERUM VITAMIN D WITH 24H-URINARY CALCIUM EXCRETION IN A SWISS POPULATION- BASED STUDY

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### Background:

Elevated urinary calcium excretion is associated with reduced bone mineral density. Population-based data on urinary calcium excretion are scarce. We explored the association of serum calcium and circulating levels of vitamin D (including 25(OH)D2 and 25(OH)D3) with urinary calcium excretion in men and women in a population-based study.

### Methods:

We used data from the "Swiss Survey on Salt" conducted between 2010 and 2012 and including people aged 15 years and over. Twenty-four hour urine collection, blood analysis, clinical examination and anthropometric measures were collected in 11 centres from the 3 linguistic regions of Switzerland. Vitamin D was measured centrally using liquid chromatography – tandem mass spectrometry. Hypercalciuria was defined as urinary calcium excretion >0.1 mmol/kg/24h. Multivariable linear regression was used to explore factors associated with 24-hour urinary calcium excretion (mmol/24h) squared root transformed, taken as the dependant variable. Vitamin D was divided into month-specific tertiles with the first tertile having the lowest value and the third tertile having the highest value.

### Results:

The 669 men and 624 women had mean (SD) age of 49.2 (18.1) and 47 (17.9) years and a prevalence of hypercalciuria of 8.9% and 8.0%, respectively. In adjusted models, the association of urinary calcium excretion with protein-corrected serum calcium was ( $\beta$  coefficient  $\pm$  standard error, according to urinary calcium squared root transformed)  $1.125 \pm 0.184$  mmol/L per square-root (mmol/24h) ( $P < 0.001$ ) in women and  $0.374 \pm 0.224$  ( $P = 0.096$ ) in men. Men in the third month-specific vitamin D tertile had higher urinary calcium excretion than men in the first tertile ( $0.170 \pm 0.05$  nmol/L per mmol/24h,  $P = 0.001$ ) and the corresponding association was  $0.048 \pm 0.043$ ,  $P = 0.272$  in women.

### Conclusion:

About one in eleven person has hypercalciuria in the Swiss population. The positive association of serum calcium with urinary calcium excretion was steeper in women than in men, independently of menopausal status. Circulating vitamin D was associated positively with urinary calcium excretion only in men. The reasons underlying the observed sex differences in the hormonal control of urinary calcium excretion need to be explored in further studies.

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