



PP34

Effect of non-carbonic acid loading on renal oxalate excretion: a randomized placebo-controlled trial in healthy subjects and recurrent calcium oxalate stone formers

F. Eichner Christiansen, S. Sloth Ooster, H. Jung, K. Hovgaard Andreassen, P.J. Sloth Ooster

Department of Urology, Urological Research Center, Lillebaelt Hospital, University of Southern Denmark, Fredericia, Denmark

Introduction: In the literature there are conflicting results regarding the effect of dietary protein on renal oxalate excretion. One of the major metabolic effects of protein ingestion is an increased endogenous production of non-carbonic acid to be excreted by the kidneys. The aim of this study was to evaluate the effect of non-carbonic acid loading on renal oxalate excretion in healthy subjects and calcium oxalate (CaOx) stone formers.

Material and Methods: Ten healthy men and 12 recurrent male CaOx stone formers matched for age and BMI were included. The study was designed as a double-blind, randomized, placebo-controlled, cross-over study in which participants underwent NH₄Cl/placebo loading. Patients and controls fasted prior to the study. Arterialized capillary blood, venous blood and urine samples were collected hourly.

Results: There was no difference in rate of oxalate excretion between controls and stone formers during fasting (placebo study). Urinary oxalate excretion increased significantly in both groups in response to non-carbonic acid loading compared to placebo loading ($p < 0.01$). There were no significant differences in oxalate excretion between patients and controls during acid loading.

Conclusion: Oxalate excretion rate in fasting urine seems to be of the same order of magnitude in healthy subjects and CaOx stone formers. Acid loading increases renal oxalate excretion in both healthy subjects and CaOx stone formers. Differences in the rate of endogenous acid production resulting from different diets might explain the differences in renal oxalate excretion to protein ingestion reported in the literature.