Activity, energy intake, obesity, and the risk of incident kidney stones in postmenopausal women: A report from the Women's Health Initiative

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Authors
Sorensen, MD
Chi, T
Shara, NM
et al.

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CONCLUSIONS: Healthcare professionals that work in an operating room, and physicians in particular, are at an increased risk of urolithiasis. Possible contributing modifiable risk factors include levels of fluid intake and stress.

Source of Funding: None

DO STATIN MEDICATIONS REDUCE THE INCIDENCE OF NEPHROLITHIASIS IN PATIENTS WITH HYPERLIPIDEMIA?

Lcdr James H Masterson*, Jason R Woo, David C Chang, CD R James O’Esperance, San Diego, CA; Marshall L Stoller, San Francisco, CA; Roger L Sur, San Diego, CA

INTRODUCTION AND OBJECTIVES: A vascular etiology has been proposed to be in part responsible for stone formation. Because statin medications reduce atherosclerosis, hyperlipidemic (HLD) patients on statins should theoretically have reduced nephrolithiasis. We investigated whether HLD patients on statins had reduced incidence of nephrolithiasis.

METHODS: A cohort of adult patients was established by retrospectively selecting the first 5000 outpatient encounters from each month at our institution in the year 2000. All HLD patients were then identified and analyzed through 2012. Demographics, comorbidities and incident nephrolithiasis for these HLD patients were recorded. Patients prescribed a statin medication, hydrochlorothiazide (HCTZ), or potassium citrate were also identified. The stone formation rate was calculated for patients on statin medications versus patients not on statin medications. To eliminate the effect HCTZ or potassium citrate on nephrolithiasis, a cohort without these medications was analyzed separately. Univariate and Student’s t-test were utilized as indicated.

RESULTS: 7,742 HLD patients (4,099 men, 3,643 women) were identified with an average age of 57+14 (60±13 men; 54±14 women). Men had a comorbidity rate of 22%-DM, 58%-HTN, and 23%-obesity while women had a rate of 30%-DM, 66%-HTN, and 34%-obesity. The comorbidity rates between men and women were statistically significant (p<0.0001), but not the rate of incident nephrolithiasis (p=0.554). The median follow up was 141 months for patients taking a statin medication and 135 months for patients not taking a statin medication. The risk of nephrolithiasis in HLD patients treated with statins was OR=0.67 (p<0.001) OR=0.81 (p=0.194) for men; OR=0.53 (p<0.001) for women. After excluding any patient with HCTZ or potassium citrate use, the risk of nephrolithiasis in HLD patients treated with statins was OR=0.63 (p=0.001) OR=0.75 (p=0.144) for men; OR=0.50 (p=0.001) for women.

CONCLUSIONS: In our study statin medications reduced the incidence of nephrolithiasis (25% for men and 50% for women) even after adjusting for prescribed HCTZ and potassium citrate. Women prescribed statins had a significant decrease in stones compared to men. This analysis suggests that HLD patients with stone disease should consider treatment with statin medications in addition to dietary modification and increased exercise.

Source of Funding: None

DIETARY INTAKE OF FIBER, VEGETABLES, AND FRUIT DECREASE THE RISK OF INCIDENT KIDNEY STONES IN WOMEN: A WOMEN’S HEALTH INITIATIVE (WHI) REPORT

Mathew Sorensen*, Ryan Hsi, Seattle, WA; Thomas Chi, Arnold Kahn, San Francisco, CA; Nawar Shara, Hong Wang, Hyattsville, MD; Marshall Stoller, San Francisco, CA

INTRODUCTION AND OBJECTIVES: Studies have suggested that high fruit and vegetable intake may improve urinary stone risk profiles, while the protective role of total dietary fiber in stone formation is unclear. The purpose of this study was to evaluate the relationship between incident kidney stone formation and dietary fiber, vegetable, and fruit intake.

METHODS: Overall, 84,225 postmenopausal women from the prospective WHI Observational Study who completed the WHI food frequency questionnaire and had no history of nephrolithiasis were included and followed longitudinally. A series of separate and then combined multivariate analyses were performed to evaluate the independent associations between incident kidney stone formation and daily intake of total dietary fiber, and medium portions of vegetables and fruits with a priori adjustment for age, race, region, body mass index, and dietary water, sodium, animal protein, and calcium intake. Soluble and insoluble fiber were evaluated in separate analyses. In each case, intake was compared to women with the lowest quintile of intake.

RESULTS: Mean age was 64±7 years, 84% of women were Caucasian, and 2,392 women (2.8%) reported an incident kidney stone in 8 years median follow up. In multivariate analyses, greater intake of total dietary fiber was associated with a 2-26% decreased risk of stone formation (p<0.001). In stratified analyses, soluble and insoluble fiber had similar decreases in incident stones, though they were highly correlated (r=0.81). Greater vegetable intake was associated with a 12-24% decreased risk of kidney stones (p<0.001) and greater fruit intake was associated with a 6-21% decreased risk of stone formation (p=0.02) in adjusted analyses. The protective effect for each variable was most pronounced in women with average intake or higher. In a combined model including all three variables, total dietary fiber remained the only independent factor associated with a decreased risk of incident stones (p=0.04).

CONCLUSIONS: Greater dietary intake of vegetables, fruits and total dietary fiber were each associated with a reduced risk of incident kidney stones in postmenopausal women. Of these factors, fiber may have the strongest association with stones. This protective effect may be due to altered intestinal absorption of nutrients associated with kidney stones, or the selection of healthy food choices at the expense of macronutrients that increase the risk of stone formation. These findings have important clinical implications regarding dietary counseling for prevention of kidney stones.

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PATIENTS WITH CHRONIC PERIODONTITIS ARE MORE LIKELY TO DEVELOP UPPER URINARY TRACT STONE: A NATION-WIDE POPULATION-BASED AND WITH AN 8-YEAR FOLLOW-UP STUDY

Hsiao-Jen Chung*, Alex T. L. Lin, Chih-Chieh Lin, Tzeng-Ji Chen, Kuang-Kuo Chen, Taipei, Taiwan

INTRODUCTION AND OBJECTIVES: Many studies have suggested that urinary stone is related to metabolic syndrome. Metabolic syndrome including high blood pressure, abdominal obesity, high blood sugar, low levels of HDL cholesterol and high triglycerides has also been found to be closely linked to chronic periodontitis. It is interesting and also important to know whether there is a relevant association between chronic periodontitis and urinary stone.

METHODS: We used data sourced from Longitudinal Health Insurance Database, which consists of one million randomly selected subjects from the National Health Insurance Research Database of Taiwan. Health Insurance System of Taiwan covers approximately 23 million people (98% of population). From 1997 to 2001, a total of 371,185 subjects who did not have previous diagnosis of urinary stone and chronic periodontitis and had a minimal follow-up of 8 years were enrolled. Of them, 16292 subjects developing chronic periodontitis during the follow-up were served as the study group. A cohort of 48876 (3 for each subject with chronic periodontitis) age and gender-matched