

LONG-TERM TREATMENT OF VITAMIN D INSUFFICIENCY OR DEFICIENCY IN POSTMENOPAUSAL WOMEN WITH HYPERCALCIURIA DOES NOT INCREASE URINARY CALCIUM EXCRETION

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INTRODUCTION AND OBJECTIVES: Vitamin D (VD) repletion in calcium (Ca) stone formers is sometimes questioned, especially if long-term and/or in those with hypercalciuria (>250 mg/d). We assessed the effect of VD repletion for 1 year on urinary Ca excretion.

METHODS: The study was randomized, double-blind, placebo-controlled, and IRB-approved. Postmenopausal women with low VD status [serum 25(OH)D <30 ng/mL; $n=90$; 61 ± 6 y; BMI 30.8 ± 6.8] were randomized to placebo, low-dose (LD) VD (800 IU daily), or high-dose (HD) VD (50,000 IU for 15 d followed by 50,000 IU twice/month for 1 y). Prefilled 31-day pill boxes were dispensed; remaining capsules were counted at study visits (60, 120, & 365 days) to assess compliance. Multiple-day weighed diet records prior to intervention were completed by all to establish individuals' usual nutritional intake. To reduce dietary confounders in 24-h urine collections, dietary intake was reproduced for energy and nutrient composition for each participant during her baseline and 1 y visits, during which 24-h urine collections were collected.

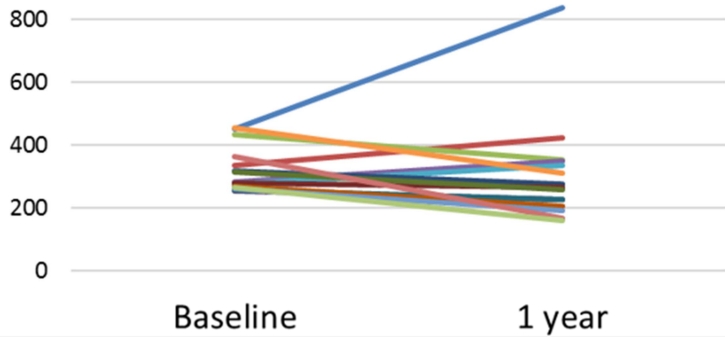
RESULTS: Median baseline urinary Ca excretion was 209 mg/d. Compliance with treatment was estimated at approximately 100% across all arms. Overall, urinary Ca excretion was unchanged at 1 y (228 ± 70 to 219 ± 92 mg/d; $P=0.25$, paired t-test). Only women in the HD group achieved 25(OH)D ≥ 30 ng/mL (21 ± 3 to 56 ± 12 ng/mL; $P<0.001$). Despite this rise in VD status, urinary Ca excretion did not increase in this group (256 ± 86 to 250 ± 131 mg/d; $P=0.74$). Nor did urinary Ca excretion change in the other groups ($P\geq 0.27$ for within-group pairwise comparisons from baseline to 1 y). Among hypercalciuric women across all groups (figure; $n=28$), Ca excretion did not change (312 ± 60 to 273 ± 130 mg/d; $P=0.07$), but tended to be lower. Hypercalciuria was resolved at 1 y in 40%, 57%, and 50% in HD, LD, and placebo groups, respectively. The incidence of new hypercalciuria at 1 y was 6.7%, 19%, and 12%, respectively.

CONCLUSIONS: Despite a significant rise in VD status, VD repletion at 50,000 IU twice monthly for 1 y, following a loading dose, did not increase urinary Ca excretion in postmenopausal women with or without hypercalciuria. VD repletion at lower doses also did not increase urinary Ca, and goal VD status was not achieved. Evidence suggests the risk for hypercalciuria is low following VD repletion in patients with low VD status.

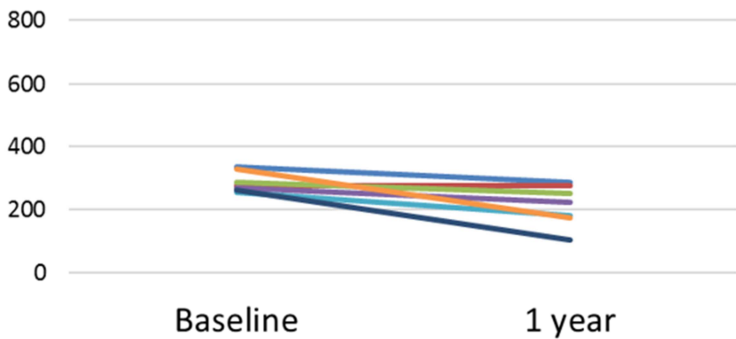
Source of Funding: None

WOMEN WITH HYPERCALCIURIA (≥ 250 mg/d)

High dose vitamin D repletion



Low dose vitamin D repletion



Placebo (no vitamin D repletion)

