Is There a Relationship between Citraturia and Kaliuria among Stone Formers?

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Fig. 1.

Correlation of citraturia/kaliuria ($y = 0.18 \times 0.1$)

References

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Dear Sir,

Sriboonlue et al. [1] have found a relationship between citraturia and kaliuria among stone formers. Their patients were village dwellers whose urinary and blood analysis showed a potassium deficiency compared to nonstone formers living in a large city. Potassium depletion can induce hypocitraturia mediated by intracellular acidosis. Moreover, Levi et al. [2] showed in the rat that potassium depletion stimulated the cotransport sodium citrate in proximal tubule apical brush border membranes. Cotransport was stimulated and citrate reabsorption was increased with hypocitraturia. Sriboonlue et al. [1] said excessive sweat and dietary factors could be the cause of potassium depletion. They administered potassium chloride to their patients and obtained a correction of potassium depletion without hypocitraturia modification. Their conclusion pointed out nutritional deficiencies and prevalence of hypokalemia in Thailand and they insist about rarity and interest of this relation hypocitraturia-hypokaliuria. In a study about dietary habits in stone former patients, we found [3] a relationship between citraturia and kaliuria. Our patients (52 men, 32 women) were oxalophosphocalcic stone formers. They had no sign of potassium depletion. Among them, recurrent stone formers had a significantly high level of calciuria, oxaluria, and uraturia compared to single-stone patients. Dietary intake was

comparable with other industrialized countries and we were unable to pinpoint what kind of nutrient was linked to stone disease activity. Among hypocitraturic patients (citraturia < 1.1 mmol/day), none of them had evidence of potassium depletion, gastroenteric disease, hypokalemia, urinary infection, or distal tu-

20

40

60 80 100 120 140 160 180

Kaliuria, mmol

bular acidosis. We found a relationship between citraturia and kaliuria ($r = 0.434$, $p = 0.0013$)

(fig. 1). In agreement with Sriboonlue et al. [1] we think this relation is interesting and deserves further studies, because environmental conditions (climate and nutrition) are very different.

Potassium citrate seems to be the best therapy for hypocitraturia patients. Potassium citrate might correct both hypocitraturia and potassium depletion of Thai patients. Dietary factors are crucial in the origin of nephrolithiasis. Acid load may probably interfere with citraturia and we agree with Vitale et al. [4] who said that 'mild acid-base derangement and/or subtle potassium depletion may be involved in hypocitraturia'.

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0028-2766/92/

0624-0466\$2.75/0