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ORIGINAL RESEARCH COMMUNICATION

Vitamin D status in kidney transplant patients: need for intensified routine supplementation^{1,2,3}

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Background: A high prevalence of vitamin D insufficiency has been found in the general population and in patients with chronic kidney disease.

Objective: The aim was to examine vitamin D status and determinants and metabolic correlates of serum 25-hydroxyvitamin D in a population of adult Danish kidney transplant patients.

Design: This was a cross-sectional study of 173 adult kidney transplant patients with a mean (\pm SD) age of 53.4 \pm 11.7 y and a median graft age of 7.4 y (interquartile range: 3.3—12.7 y). Serum concentrations of intact parathyroid hormone (S-PTH), 25-hydroxyvitamin D [S-25(0H)D], and 1,25-dihydroxyvitamin D [S-1,25(0H)D] were measured.

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Dietary and supplementary intake of vitamin D, avoidance of solar ultraviolet B exposure, and selected lifestyle factors were assessed in a subgroup (n = 97).

Results: Fifty-one percent of the patients had vitamin D insufficiency $[S-25(0H)D \ 40-75 \ nmol/L]$, and an additional 29% had moderate-to-severe vitamin D deficiency $[S-25(0H)D \le 39 \ nmol/L]$. In multiple regression analysis, sun avoidance (negative association) and vitamin D supplementation (positive association) were independent determinants of S-25(0H)D concentrations. Low S-25(0H)D concentrations were associated with 1) increased S-PTH concentrations (P = 0.002), independently of S-1,25(0H)₂D concentrations, and 2) decreased S-1,25(0H)₂D concentrations (P = 0.002), independently of graft function.

Conclusions: Hypovitaminosis D is common among Danish kidney transplant patients and is associated with reduced concentrations of S-1,25(OH)₂D and increased S-PTH concentrations. Sun avoidance and vitamin D supplementation are important determinants of vitamin D status. The observed hypovitaminosis D might be corrected by intensified routine vitamin D supplementation as opposed to the current supplementation practice.

Key Words: Kidney transplantation • hypovitaminosis D • prevalence • sun exposure • vitamin D intake • 25-hydroxyvitamin D • 1, 25-dihydroxyvitamin D • parathyroid hormone