Kidney transplant recipients with vitamin D deficiency who received vitamin D supplementation fared no better in the short term post-transplant than those who did not receive vitamin D. Supplementation may even have had adverse effects on the transplanted organs, a study shows.

Almost 90 percent of patients who receive renal allografts show a lack of vitamin D because of treatments with corticosteroids for immunosuppression as well as advice to avoid sun exposure because of an increased risk of cancer from immunosuppression. However, there has not been consensus about what to do for these patients.

Researchers led by Ursula Thiem, MD, of the Division of Nephrology and Dialysis at the Medical University of Vienna (Vienna, Austria), conducted VITA-D, a large, randomized, placebo-controlled, double-blind trial among adult kidney transplant recipients whose calcitriol levels were less than 50 nmol/L (equivalent to 20 ng/mL). Patients (n = 203) were then randomly assigned in a 1:1 ratio to receive either 6800 IU oral vitamin D3 daily or placebo for 1 year.

Outcome measures were renal function as assessed by serum creatinine, as well as the incidence of rejection episodes and infections at 1 year posttransplant. Rejection episodes and infections were weighted by severity to produce a monthly combined event rate. Analyses of only those patients who were compliant and completed the study were performed at 6 (n = 135) and 12 months (n = 123).

Thiem presented the study at the annual meeting of the European Renal Association—European Dialysis and Transplant Association conference in London in May.

Worse kidney function with vitamin D3 supplementation

At 12 months, patients who had received vitamin D3 supplements had worse allograft function than patients who had received placebo. A per protocol analysis showed that the serum creatinine level for the group taking the vitamin supplements was 1.545 mg/dL compared to 1.415 mg/dL for patients on placebo (p = 0.0157). Analysis at 6 months showed an even more dramatic difference: 1.61 mg/dL with supplementation vs. 1.43 mg/dL without (p = 0.00952). There were no differences between the groups in terms of the incidence of acute rejection episodes or infections.

The authors concluded that kidney transplant recipients’ renal function was not improved in the short term by treatment of their vitamin D deficiency, and vitamin D supplementation may have even had negative effects on allograft function.

Senior author Kyra Borchhardt, MD, of the Medical University of Vienna and the Dialysis Institute Klagenfurt in Austria commented that the vitamin D3 dosing regimen in the study achieved adequate 25-hydroxyvitamin D levels in the majority of patients at 6 and 12 months. Nonetheless, any expected benefits on allograft function were not seen. The researchers had hypothesized that fewer rejection episodes and infections could improve allograft function, but “there was no difference in the incidence of infections and acute allograft rejections between vitamin D3-treated patients and control patients,” she said.

She noted that the patients in the group receiving vitamin D3 supplements had received organs from significantly older donors, which could predispose them to worse outcomes. But once this and other possible confounding factors were controlled for, the negative treatment effect of vitamin D3 was still apparent at 6 and 12 months.

Although Kidney Disease Improving Global Outcomes (KDIGO) guidelines recommend vitamin D supplementation after kidney transplant, Borchhardt notes that KDIGO emphasizes that the recommendation is based on low-quality evidence because of a lack of randomized, controlled trials. In light of the VITA-D study results, “we believe that vitamin D supplementation should be considered carefully and closely monitored for hypercalcemia,” she said.

So far, the VITA-D investigators have not performed any subgroup analyses of their data, so the possibility remains that certain subgroups of patients could benefit by taking vitamin D post-transplant, Borchhardt said.

Kidney Markers May Help Predict Cardiovascular Outcomes

Key measures of chronic kidney disease (CKD) can improve prediction of cardiovascular outcomes, suggests a meta-analysis in *Lancet Diabetes and Endocrinology*.

The analysis included individual-level data on more than 637,000 individuals with no history of cardiovascular disease, drawn from 24 cohorts included in the Chronic Kidney Disease Prognosis Consortium. The median follow-up times ranged from 4 to 19 years. The study focused on the cardiovascular predictive value achieved by adding creatinine-based estimated GFR (eGFR), albuminuria, or both to traditional risk factors. Albuminuria was assessed by either albumin-to-creatinine ratio (ACR) or dipstick proteinuria. The 5-year outcomes of interest were cardiovascular mortality and fatal or nonfatal coronary heart disease, stroke, and heart failure.

In general populations, adding eGFR and ACR to traditional risk factors significantly improved discrimination. The greatest improvements were seen for cardiovascular mortality, with G statistic differences of 0.0139 for ACR and 0.0065 for eGFR; and heart failure, with differences of 0.0196 and 0.0109, respectively.

Dipstick proteinuria had less predictive value than did ACR.

Adding eGFR and ACR to predictive models offered the best risk discrimination improvement in patients with diabetes or hypertension. However, ACR still had significant predictive value for cardiovascular death or heart failure in patients with neither of those conditions. For patients with CKD, the combination of eGFR and ACR had better risk discrimination than did traditional risk factors.

There are conflicting data as to whether key measures of kidney health are relevant to cardiovascular risk prediction. This meta-analysis suggests that eGFR and ACR have significant cardiovascular predictive value and should be considered when these measures are already available or if there is special interest in assessing the risk of cardiovascular death or heart failure [Matsumoto K, et al. Estimated glomerular filtration rate and albuminuria for prediction of cardiovascular outcomes: a collaborative meta-analysis of individual participant data. *Lancet Diabe
tes Endocrinol* 2015; doi:10.1016/S2213-8587(15)00040-6].

Pediatric Nephrology Workforce: Comprehensive Survey

A nationwide survey raises concerns of a potential shortage of pediatric nephrologists, according to a special report in the *American Journal of Kidney Disease*.

Commissioned by the American Academy of Pediatrics, the 2013 e-mail survey yielded 504 responses from pediatric nephrologists training or practicing in the US. Just over half of the respondents were men, but women accounted for more than 60 percent of more recent graduates. Two-thirds of respondents were US graduates, and nearly 80 percent planned to retire at least partially. Two-thirds of the US respondents said they anticipated a shortage of their training programs in pediatrics and challenges facing the pediatric nephrology workforce. The authors discussed the implications for efforts to recruit qualified trainees, with attention to issues including work-life balance, compensation, and mentorship [Przybeck WA, et al. The US pediatric nephrology workforce: a report commissioned by the American Academy of Pediatrics. *Am J Kidney Dis* 2015; doi:10.1053/j.ajkd.2015.03.022].

Vitamin D Supplements Not Advised in First Year Post-Kidney Transplant

By Daniel M. Keller

Kidney transplant patients with vitamin D deficiency who took vitamin D3 supplements did not fare better than those who did not receive vitamin D supplementation. The authors recommend against vitamin D supplementation in the first year following kidney transplant.

Researchers analyzed individual-level data from 2354 patients who received a kidney transplant in 11 European centers. The patients were randomly assigned in a 1:1 ratio to receive either vitamin D3 at a daily dose of 25 mg or placebo for 12 months.

At 12 months, patients who received vitamin D3 supplements had worse allograft function than patients who received placebo. A per protocol analysis showed that the serum creatinine level for the group taking the vitamin supplements was 1.545 mg/dL compared to 1.415 mg/dL for patients on placebo (p = 0.0157). Analysis at 6 months showed an even more dramatic difference: 1.61 mg/dL with supplementation vs. 1.43 mg/dL without (p = 0.00952). There were no differences between the groups in terms of the incidence of acute rejection episodes or infections.

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