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

By Daniel M. Keller

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 received 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 University of Vienna, Austria, conducted VITA-D, a large, randomized, placebo-controlled, double-blind trial among adult kidney transplant recipients whose calcidol levels were less than 50 nmol/L (equiva- lent to 20 ng/mL). Patients (n = 203) were 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 post-transplant. Rejection episodes and infections were weighted by severity to produce a monthly combined event rate. Analyses of only those patients who were compli- ant 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 re- ceived vitamin D3 supplements had worse allograft function than patients who had received placebo. A per pro- tocol 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 supple- mentation vs. 1.43 mg/dL without (p = 0.0052). There were no differences between the groups in terms of the inci- dence of acute rejection episodes or infections.

The authors concluded that kidney transplant recipients’ renal function was not improved in the short term by treat- ment 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 Aus- tria commented that the vitamin D3 dosing regimen in the study achieved adequate 25-hydroxyvitamin D concentra- tions 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 infec- tions could improve allograft function, but “there was no difference in the inci- dence of infections and acute allograft rejection between vitamin D3-treated patients and control patients,” she said.

She noted that the patients in the group receiving vitamin D3 supple- ments had received organs from signifi- cantly older donors, which could pre- dispose them to worse outcomes. But once this and other possible confound- ing factors were controlled for, the neg- ative 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 random- ized, controlled trials. In light of the VITA-D study results, “we believe that vitamin D supplementation is not an adequate 25-hydroxyvitamin D ther- apy because of its adverse effects on allograft function,” she said.

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

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 pedi- atric nephrologists trained or practicing in the US. Just over half of the respond- ents were men, but women accounted for more than 60 percent of more recent graduates. Two-thirds of respondents were US graduates, and nearly 80 per- cent were board certified in pediatric nephrology. The 384 respondents based in the US worked long hours, averaging 56.5 hours per week for men and 53 for women. Nearly all participated in patient care; most also taught, did administrative work, and performed clinical research. About three-fourths worked in academic settings, and half worked in programs that teach pediatric nephrology fellows. Respondents reported a median of 16 weeks on call per year; about 30 percent had no partner or only one partner.

About one-third of US respondents said they planned to reduce or stop their pediatric nephrology practice within the next 5 years, and about half said that they planned to retire at least partially. Two- thirds of the US respondents said they competed for patients with other pediat- ric nephrologists in their area. Nearly half of the US division directors considered their division staffing to be inadequate. Many divisions lacked the full team of inter- disciplinary professionals recommend- ed for care of pediatric kidney disease.

The report highlights the characteristics and challenges facing the pediatric nephrology workforce. The authors dis- cuss the implications for efforts to re- cruit qualified trainees, with attention to issues including work-life balance, com- pensation, and mentorship (Prymak WA, et al. The US pediatric nephrol- ogy workforce: a report commissioned by the American Academy of Pediatrics. Am J Kidney Dis 2015; doi:10.1053/j. ajkd.2015.03.022).

Kidney Markers May Help Predict Cardiovascular Outcomes

Key measures of chronic kidney disease (CKD) can improve prediction of cardio- vascular outcomes, suggests a meta-anal- ysis in Lancet Diabetes and Endocrinol- ogy.

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 Conso- rtiuim. 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 ei- ther 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 sig- nificantly improved discrimination. The greatest improvements were seen for car- diovascular mortality, with C-statistic dif- ferences of 0.0139 for ACR and 0.0065 for eGFR; and heart failure, with differ- ences 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 discrimination improve- ment in patients with diabetes or hypertension. However, ACR still had significant predictive value for cardiovas- cular death or heart failure in patients with neither of those conditions. For patients with CKD, the combination of eGFR and ACR had better risk discrimi- nation than did traditional risk factors.

There are conflicting data as to wheth- er key measures of kidney health are rel- evant 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 participiant data. Lancet Diabe- tes Endocrinol 2015; doi:10.1016/S2213- 8587(15)00040-6).