

# Vitamin D linked to reduced mortality rate in CKD

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For patients with moderate to severe chronic kidney disease (CKD), treatment with activated vitamin D may reduce the risk of death by approximately one-fourth, suggests a study in the August *Journal of the American Society of Nephrology*.

Many patients with advanced CKD take the drug calcitriol, an oral form of activated vitamin D, to treat elevated levels of parathyroid hormone. "Although activated vitamin D is known to influence many biological processes, previous clinical knowledge is limited to its effect on parathyroid hormone levels," explains Dr. Bryan Kestenbaum of the University of Washington in Seattle, one of the study authors.

The study included 1,418 patients who had stage 3 to 4 CKD, which means moderately to severely reduced kidney function. All patients also had high parathyroid hormone levels (hyperparathyroidism), which can contribute to weakening of the bones in CKD. The researchers identified one group of patients who were being treated with calcitriol to lower their parathyroid hormone levels and another group who were not receiving calcitriol.

During a two-year follow-up period, mortality rates were compared for patients who were and were not taking calcitriol. "We then adjusted for differences in age, kidney function, parathyroid hormone levels, other illnesses, and other medications," says Dr. Kestenbaum.

In the adjusted analysis, the overall risk of death was about 26 percent

lower for patients taking calcitriol. Patients on calcitriol were also less likely to develop end-stage renal disease, requiring dialysis to replace lost kidney function.

Overall, treatment with calcitriol was associated with a 20 percent reduction in the risk of either death or dialysis. The reduction in mortality with calcitriol was unrelated to its effect on parathyroid hormone levels.

"Recently, there has been an increased focus on the effects of vitamin D beyond those on bone health," Dr. Kestenbaum comments. "Vitamin D deficiency has been associated with risk factors for cardiovascular disease, such as high blood pressure, diabetes, and inflammation." Previous studies have suggested that treatment with intravenous vitamin D can improve survival in patients on hemodialysis.

The new results suggest that treatment with oral activated vitamin D may also improve survival in patients with CKD who do not yet require dialysis. "Randomized clinical trials are needed to test the hypothesis that vitamin D therapy can improve cardiovascular health and survival in CKD," Dr. Kestenbaum adds. "Future studies should also examine the role of non-activated vitamin D, which is less expensive and less toxic."

The study has some important limitations, including a lack of data on other factors that may have affected survival in patients taking calcitriol. Also, since the study included mainly older, white men, the results may not apply to younger, more ethnically diverse populations with CKD.

Source: American Society of Nephrology

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