

만성신장질환자의 cholecalciferol 보충이 혈중 염증지표에 미치는 영향

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Cholecalciferol Supplementation on Serum Inflammatory Markers in Chronic Kidney Disease Patients with Hypovitaminosis D

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Background: Vitamin D deficiency is highly prevalent among patients with chronic kidney disease (CKD), and achievement and maintenance of adequate vitamin D status have been demonstrated that it has a role in managing inflammation and immunity. Therefore, this study was aimed to investigate whether cholecalciferol supplementation would be efficacious at raising serum 25(OH)D levels, and that the changes of 25(OH)D level would act on an effective factor to suppress circulating inflammatory markers such as e-selectin and vascular endothelial growth factor (VEGF), and increase adiponectin concentration.

Methods: This study was a six - month randomized controlled trial for pre-dialysis CKD patients with hypovitaminosis D (25(OH)D<30 ng/mL). The study subjects (n=92) were stratified three groups according to gender, CKD stage and serum 25(OH)D status. They were randomly allocated to control group (Control) and cholecalciferol supplement group (Group 1). Patients with vitamin D deficiency (25(OH)D<10 ng/mL) were placed in another cholecalciferol supplement group (Group 2). Randomized patients in the treatment group were instructed to take 2000 IU cholecalciferol per day for 6 months. We assessed serum levels of inflammatory markers such as e-selectin, VEGF, and adiponectin at baseline and the end of 6 months to investigate the association between serum levels of 25(OH)D, inflammatory cytokines and other biochemical parameters of control and treatment group.

Results: There was a significant increase in 25(OH)D levels at 6 months when compared to baseline. The proportion of adequate vitamin D status (25(OH)D≥30 ng/mL) was 74.3% in Group 1, and was 48.0% in Group 2 at 6 months. Moreover, none of the cholecalciferol treated patients had vitamin D deficiency at 6 months. Serum iPTH level was significantly lower in the control group and cholecalciferol treatment groups. Serum alkaline phosphatase levels were significantly reduced in cholecalciferol treatment Group 1 and Group 2 (p<0.001 and p<0.001, respectively). However, cholecalciferol supplementation for 6 months had no significant impact on circulating inflammatory markers related to cardiovascular disease.

Conclusion: The present study suggests that hypovitaminosis D with CKD patients can be corrected by taking daily 2000 IU cholecalciferol for 6 months. This replenishment is associated with lowering PTH and ALP levels. However, we were not able to show the effects of cholecalciferol supplementation on the inflammatory markers.

Key Words: 비타민 D 결핍, 콜레칼시페롤, 염증지표

Hypovitaminosis D, Cholecalciferol, Inflammatory markers