

Vitamin D Deficiency Deteriorate the Health-Related Quality of Life in Patients with Advanced Chronic Kidney Disease

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Background: The prevalence of chronic kidney disease (CKD) are increasing and life expectancy is also increasing with advances in medicine. Not a mere increase in the life expectancy, quality of life (QOL) has been in the limelight. In recent years, many studies show that vitamin D is not only significant component of chronic kidney disease-Mineral and bone disease (CKD-MBD) but also influence the immunologic responses. We analyzed the relationship of vitamin D which play an important role in the CKD and quality of life.

Methods: We surveyed the 989 patients with CKD stage 3-5 (non-dialysis) in Korea based on the baseline data obtained from a prospective cohort study (KoreaN Cohort Study for Outcome in Patients With Chronic Kidney Disease: A 10-year Longitudinal Cohort Study of the Chronic Kidney Disease (KNOW-CKD)). Korean version of Kidney Disease Quality of Life short form (KDQOL-SF), version 1.3 were used to evaluate Health Related Quality of Life (HRQOL). HRQOL was composed of kidney disease component summary (KDCS), physical component summary (PCS) and mental component summary (MCS). KDCS had 43 kidney-disease targeted items. PCS and MCS had 36-item health survey as the generic core. We divided the patients into 2 groups (control group and vitamin D deficiency group). Vitamin D deficiency defined as below 20 ng/ml.

Results: Glomerular filtration rate (GFR) showed positive correlations with vitamin D and HRQOL (Pearson's $r=0.093$, $p=0.003$ and Pearson's $r >0.14$, $p<0.001$). Vitamin D ($\beta=0.23$, $p=0.007$) was independent risk factor associated with lower KDCS. Although vitamin D deficiency group had lower scores of every parts of HRQOL, PCS and MCS didn't show statistically significant relationship with vitamin D.

Conclusions: Vitamin D deficiency is prevalent medical condition in CKD patients. Lower level of vitamin D is associated with lower scores of KDCS of HRQOL. Vitamin D supplement may improve QOL in patient with vitamin D deficiency.

Key Words: CKD, Vitamin D, QoL