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만성신장병 환자에서 25-hydroxyvitamin D의 측정

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25-hydroxyvitamin D Status in Patients with Chronic Kidney Disease in a Single Center

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Introduction : Recent epidemiological data have emphasized on monitoring levels on 25- hydroxyvitamin D (25-OH- D) because 25- OH- D values are influenced by various clinical conditions such as metabolic disease, infection, malignancy and chronic kidney disease (CKD). We checked levels of 25- OH- D to survey the state of vitamin D insufficiency and deficiency in patients with CKD, to investigate the seasonal variation of 25- OH- D and to understand relationships with levels of intact PTH, corrected calcium, phosphate, alkaline phosphatase.
Methods : We defined Vitamin D insufficiency as 25- OH- D levels between 20 and 30 ng/mL, Vitamin D deficiency as 25- OH- D levels below 10 ng/ml. Patients are divided into 3 groups, CKD2- 3, CKD4 and CKD5 according to CKD stages by National Kidney Foundation. Continuous variables are summarized by mean±SD. We considered two- tailed hypothesis testing and regarded $p<0.05$ as statistically significant. In order to investigate the seasonal variations of 25- OH- D we conducted the repeated measures ANOVA method. The relationships between 25- OH- D and intact PTH, Corrected Ca, P, and ALP were examined by using Spearman's Correlation analysis. We used SAS (Version 9.1, Cary, NC, USA) for analyzing the data set.
Results : Among CKD 2- 3 patients, patients who were in Vitamin D insufficiency is 20.5%, 21.5% in summer, winter, respectively. Among CKD 2- 3 patients, patients who were in Vitamin D deficiency is 28.2%, 21.4% in summer, winter, respectively. Differences of levels of 25- OH- D between summer and winter season were only significant in CKD stage 2- 3 ($p=0.018$). There was a negative correlation between 25- OH- D and intact PTH ($r=-0.2048$, $p<0.001$), phosphate ($r=-0.1711$, $p=0.0011$).
Conclusion : Our results show that vitamin D insufficiency is appeared in 20.5%, 21.4% and vitamine D deficiency is also developed in 28.2%, 21.4% of CKD 2- 3 patients in summer, winter seasons, respectively. Seasonal variations on levels of 25- OH- D were significant only in CKD stage 2- 3. Levels of 25- OH- D were correlated with inversely those of intact PTH, phosphate. Vitamin D insufficiency and deficiency develops in early stage of CKD so we propose that earlier replacement of 25- OH- D may also contribute to the prevention of secondary hyperparathyroidism.

Key Words : 비타민 D 결핍, 만성신장병
Vitamin D deficiency, Chronic Kidney Disease