

## 투석을 시작하는 말기 신부전 환자에서 시간-평균 혈청 부갑상선 호르몬이 대동맥 석회화와 주요 심뇌혈관 사건에 미치는 영향

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### Effects of Time-Averaged Serum Intact Parathyroid Hormone Level on the Progression of Aortic Arch Calcification and Major Adverse Cardiac and Cerebrovascular Events in Incident Dialysis Patients

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**Background:** Cardiovascular disease(CVD) is a major cause of death in end-stage renal disease (ESRD) patients and several studies have indicated that aortic arch calcification (AAC) is related to increased cardiovascular mortality in these patients. Parathyroid hormone has a buffering role on calcium-phosphate (Ca-P) metabolism on bone even though hyperparathyroidism is known as a significant risk factor for vascular calcification in dialysis population. To evaluate the prognostic role of abnormal serum parathyroid hormone levels in ESRD patients, we investigated the association of time-averaged serum intact parathyroid hormone(TA-iPTH) levels with AAC and major adverse cardiac and cerebrovascular events (MACCEs) in incident dialysis patients.

**Methods:** Patients who started dialysis between Jan. 2005 and Sep. 2013 at Yonsei University Health System were enrolled in this study. We divided the patients into three groups according to TA-iPTH level during the 1st year of dialysis (group 1, <65 pg/mL; group 2, 65 to under 300 pg/mL; group 3, ≥300 pg/mL). AAC was evaluated by plain chest X-ray at the time of dialysis initiation and after 1 year, respectively. Primary endpoint was progression of AAC at 12 months and development of MACCEs during follow up period.

**Results:** A total number of 413 incident dialysis patients were included. Multiple logistic regression analysis revealed that age(odds ratio (OR)=1.057, 95% confidence interval (CI)=1.031-1.083, p<0.001), HD (vs. peritoneal dialysis, OR=2.552, 95% CI=1.398-4.661, p=0.002) and low TA-iPTH level (group 2 as reference; group 1, OR=2.738, 95% CI=1.458-5.142, p=0.002) were independent risk factors for AAC progression. Multivariate Cox regression analysis demonstrated that low TA-iPTH level was a significant independent predictor of MACCEs(group 2 as reference; group 1, hazard ratio=1.951, 95% CI=1.062-3.586, p=0.031) in incident dialysis patients after adjusting for age, sex, dialysis modality, history of diabetes or CVD, mean blood pressure, log C-reactive protein, albumin, Ca×P product, total cholesterol and medications for chronic kidney disease-mineral and bone disorder.

**Conclusion:** Low TA-iPTH level below reference value during the 1st year of dialysis was an independent risk factor for the progression of AAC and MACCEs in incident dialysis patients. Control of hypoparathyroidism as well as hyperparathyroidism should be considered for prevention of vascular calcification in incident dialysis population.

**Key Words:** 부갑상선 호르몬, 대동맥 석회화, 주요 심뇌혈관 사건  
Parathyroid hormone, Aortic arch calcification, MACCE