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Low Parathyroid hormone levels predict with infection-related mortality in incident dialysis patients

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Objectives : Dialysis patients have increased susceptibility to infection, and infection related mortality is considerably high in dialysis patients. Parathyroid hormone (PTH) receptors were located in most immunologic cells, and has been known as an immunoregulatory factor. We evaluated the impact of intact PTH (iPTH) levels on infection related outcomes in incident dialysis patients.

Methods : Incident dialysis patients were selected from the Clinical Research Center registry a prospective Cohort study on dialysis patients in Korea. Serum iPTH levels were divided into three groups (iPTH <150 pg/mL, 150 ≤iPTH< 300 pg/mL, and iPTH ≥300 pg/mL). The primary outcome was all cause and infection-related mortality and the secondary outcome was infection-related hospitalization.

Results : A total of 1,260 hemodialysis and 511 peritoneal dialysis patients were included. The median follow-up period was 24 months. During follow up period, 175/1,771 (9.9 %) was died and 35/1,771 (2.0 %) was died of infection related cause. Kaplan-Meier analysis showed that the all-cause mortality rates (P < 0.001, Log-rank) as well as infection-related mortality rates (P = 0.003, Log-rank) were significantly higher in patients with lower iPTH levels than in patients with higher iPTH levels. There were no significant differences among groups in rates of infection-related hospitalization. Serum iPTH levels were independently correlated with age, albumin, corrected calcium, alkaline phosphatase and phosphate by multiple logistic regression. The multivariate Cox regression analysis showed that patients with serum iPTH <150 pg/mL remained at higher

risk for infection-related mortality than those with target range of iPTH levels by KDIGO guideline, 150 ≤iPTH< 300 pg/mL, after adjusting for confounding variables (Hazard Ratio = 2.439 [1.027-5.793], P = 0.043). However, there was no significant risk for all-cause mortality after adjusting for confounding variables.

Conclusions : Low iPTH levels was an independent predictor marker of infection related mortality after adjustment of multiple confounders in incident dialysis patients.

Keywords : hemodialysis, parathyroid hormone, infection, mortality