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Hepcidin, iron status, and mineral metabolism in peritoneal dialysis patients

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Objectives: The present study aimed to investigate the association of hepcidin with iron status and bone mineral metabolism in peritoneal dialysis (PD) patients.

Methods: Patients who started PD at Seoul National University Hospital from January, 2010 to August, 2018 and who had not received renal replacement therapy before and whose baseline serum samples were available were enrolled. Serum hepcidin levels were measured by enzyme-linked immunosorbent assay (ELISA) using Hepcidin 25 (bioactive) HS ELISA kits (DRG Diagnostics, Marburg, Germany), according to the manufacturer's protocol. Multivariable linear regression analysis was used to identify the association of hepcidin with iron status and bone mineral metabolism.

Results: A total of 162 incident PD patients were analyzed. The patients were 45.4±13.6 years old and 78 (48.1%) were male. The median serum hepcidin level was 50.67 ng/mL (interquartile range, 25.34-83.61 ng/mL). Mean hemoglobin level was 10.4±1.3 g/dL. The prevalence of hemoglobin <10 and <11 g/dL were 40.1% and 67.9%, respectively. Hemoglobin (Pearson correlation, -0.19; P = 0.014) and ferritin (Pearson correlation, 0.59; P< 0.001) were associated with hepcidin in unadjusted analysis. In multivariable linear regression analysis with adjustment for multiple confounders, hepcidin was positively associated with ferritin (β=0.66; 95% confidence interval, 0.50-0.81; P< 0.001). There were not significant associations between hepcidin and markers of mineral metabolism: calcium (Pearson correlation, -0.01; P = 0.161), phosphorous (Pearson correlation, -0.05; P = 0.538), LogPTH (Pearson correlation, 0.05; P = 0.554), 25(OH)VitD (Pearson correlation, 0.04; P = 0.683). Hepcidin levels were not significantly different according to use of iron therapy, erythropoiesis stimulating agents or phosphate binders.

Conclusions: Hepcidin was positively associated with ferritin. There were not significant associations between hepcidin and markers of mineral metabolism in our PD patients.