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Clinical significance of hypophosphatemia in chronic hepatitis B patients receiving antiviral therapy

Mee Yeon Park, Song In Baeg, Junseouk Jeon, Jung Eun Lee, Wooseoung Huh, Yoon-Goo Kim, Dae joong Kim, Hye Ryoun Jang
Department of Internal Medicine-Nephrology, Samsung Medical Center, Korea, Republic of

Objectives: Antiviral therapy is the basis of treatment in chronic hepatitis B (CHB). Although antiviral agents have been reported to cause hypophosphatemia, the clinical significance remains unclear. We investigated the incidence and clinical impact of hypophosphatemia in a large cohort of patients with CHB.

Methods: This retrospective cohort study included CHB patients who started antiviral therapy between 2005 and 2015, and continued at least one year after starting therapy. Patients with liver cirrhosis, diabetes mellitus, hypertension, concomitant administration of diuretics, and ESRD were excluded. Hypophosphatemia was defined as serum phosphorus level 2.5 mg/dL. Patients were categorized depending on the change of serum phosphate level. The primary outcomes were changes in renal function. Secondary outcomes included the incidence of infection and changes in serum potassium, uric acid, and total carbon dioxide (tCO_2).

Results:

A total of 4,335 patients were analyzed and hypophosphatemia developed in 1.7% of patients. The estimated glomerular filtration rate (eGFR) decreased significantly in the hypophosphatemia group. During the 2 year follow-up, patients whose serum phosphate level decreased by more than 0.5 mg/dL showed significantly lower eGFR compared to the control group. The incidence of infection and changes in serum potassium, uric acid, and tCO_2 were comparable between groups.

Conclusions: Although the incidence of hypophosphatemia during antiviral therapy was relatively low, the decrease in serum phosphate level was significantly associated with the decline of renal function in CHB patient receiving antiviral therapy. Our results suggest that hypophosphatemia may be a surrogate marker of adverse renal outcome in these patients.