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## **Two cases of adefovir treatment associated nephrogenic hypophosphatemic osteomalacia in patients with chronic hepatitis B**

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**Case Study:** Although Adefovir dipivoxil (ADV) shows excellent efficacy in viral suppression in chronic hepatitis B, there are several reports about renal tubular toxicity after long-term use of these antiviral agents. Fanconi syndrome, a severe condition resulting from proximal renal tubular toxicity, is characterized by impaired reabsorption of bicarbonate, phosphate, glucose, uric acid and amino acids results in hypophosphatemia, renal glycosuria, tubular proteinuria and proximal renal tubular acidosis (RTA). Here, we report two cases of nephrogenic hypophosphatemic osteomalacia after ADV exposure in CHB patients presented with multiple bone fractures.

Patient A is 58-year-old man with a history of CHB on lamivudine and adefovir. He was referred to our rehabilitation clinic with 2-week of muscle weakness and myalgia on both lower extremities. On physical examination, patient A showed diffuse tenderness on bilateral rib cage, back, hip, knee, and ankles. His serum electrolyte panel were sodium of 137 mmol/L, potassium of 2.9 mmol/L, chloride of 103mmol/L, phosphorus of 2.4mg/dL and total calcium of 7.6 mg/dl. Fractional excretion of phosphate was 89.6%. Whole body bone scan shows multiple fractures in both ribs, scapular, sacrum, and left parasymphysis. Patient B is a 50-year-old male who has been diagnosed with HBV mono-infection and medicated with ADV thereafter. He complained multiple joints pain, such as both knees, ankles, hip joints, and back area. Bone scan shows multiple fracture on spine and lower extremities. Serum phosphate was 1.7 mg/dl and fractional excretion of phosphate was 51.1%. We currently treated with vitamin D, calcium and phosphate supplementation with changes of antiviral agent in both patients.

In conclusion, we present two cases of ADV-induced nephrogenic hypophosphatemic osteomalacia with multiple fracture. Physicians should be caution with chronic hepatitis B patients on medication of ADV and need to check up the urinalysis and serum phosphate level regularly.