Abstract Type : Poster exhibition
Abstract Submission No.: A-0485
Abstract Topic : Dialysis

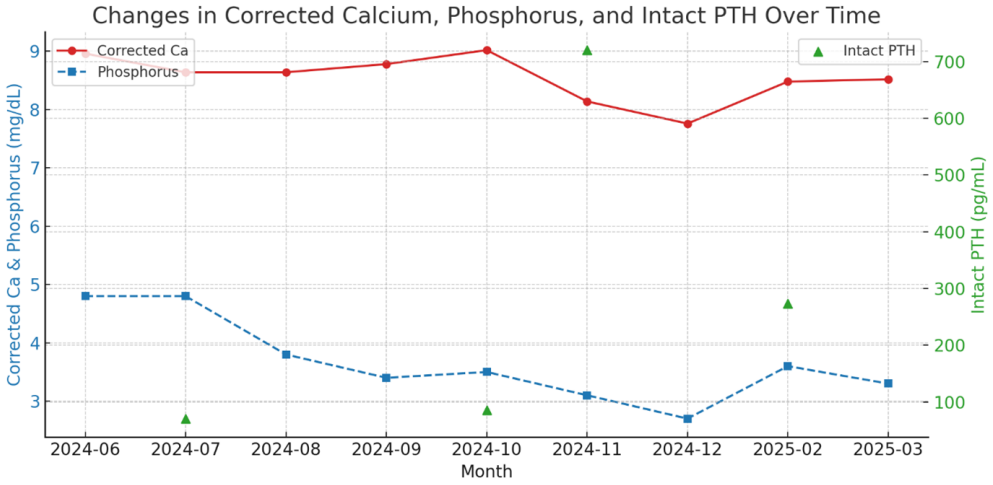
Effect of Dialysate Calcium Reduction and Citrate-Based Dialysate on Serum Calcium and Intact PTH Levels in Hemodialysis Patient: A Case Report

Mun Jang, Seungwoo Lee
Department of Internal Medicine-Nephrology, Yemidam Hospital, Korea, Republic of

Case Study : Dialysate composition plays a critical role in maintaining calcium homeostasis and regulating parathyroid hormone (PTH) levels in hemodialysis patients. We report a case of an 83-year-old female patient with diabetes mellitus and end-stage kidney disease (ESKD), who had been on thrice-weekly hemodialysis since 2023. Due to a decline in her general condition, she was hospitalized in 2024 for continued dialysis. Her dietary intake, medication regimen, and overall clinical status remained stable during this period, allowing for close monitoring of biochemical changes. In July 2024, the dialysate composition was modified, replacing the acetate-based acid solution with a citrate-based solution. This change was accompanied by a reduction in dialysate calcium concentration from 6.0 mmol/L to 5.0 mmol/L. Following this modification, a progressive decline in corrected serum calcium levels was observed, reaching a low of 7.76 mg/dL in December 2024. Concurrently, intact PTH (iPTH) levels exhibited a marked increase, peaking at 720 pg/mL in November 2024. Importantly, there were no significant changes in serum phosphorus levels, dietary intake, medication adherence, or overall clinical condition during this period. In January 2025, the dialysate was reverted to the previous acetate-based formulation with a calcium concentration of 6.0 mmol/L. Within one month of this change, corrected calcium levels improved to 8.48 mg/dL, and iPTH levels returned to the target range (150–300 pg/mL) by February 2025. This case highlights the potential impact of dialysate calcium reduction and citrate-based dialysate on calcium metabolism, demonstrating that such changes can lead to significant hypocalcemia and secondary hyperparathyroidism. Clinicians should closely monitor calcium and PTH levels when modifying dialysate composition to prevent complications related to mineral metabolism in dialysis patients.

figure1.png


THE KOREAN SOCIETY OF NEPHROLOGY
KSN 2025
SEOUL, KOREA
June 19 (Thu) – 22 (Sun), 2025 Coex, Seoul, Korea
Beyond Challenges, Towards Healthier Kidney


Changes in Corrected Calcium, Phosphorus, and Intact PTH Over Time
Corrected Ca
Phosphorus
Intact PTH
Corrected Ca & Phosphorus (mg/dL)
Intact PTH (pg/mL)
Month
2024-06
2024-07
2024-08
2024-09
2024-10
2024-11
2024-12
2025-02
2025-03