

## Small Returns for Big Investment: CKD-MBD Therapy from 2005 to 2013

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**BACKGROUND:** Although significant resources are devoted towards the control of phosphorus (Pi), calcium (Ca) and parathyroid hormone (PTH) in dialysis patients as treatment for chronic kidney disease–mineral bone disorder (CKD-MBD), there is a deficiency of evidence supporting this practice. We aimed to describe the trends in Pi, Ca, PTH in a prevalent dialysis cohort following the introduction of non-calcium based phosphate binders (NCBPB)–sevelamer (year introduced into formulary:2002) and lanthanum (2007) – and cinacalcet (2006).

**METHODS:** An observational cohort study was conducted on 7645 patients receiving dialysis in British Columbia (BC) from 2005–2013 entered into the PROMIS (Patient Records and Outcome Management Information System) database. Demographic, clinical, medication and laboratory data were obtained from the database. All results of laboratory investigations performed for these patients within BC were automatically uploaded into PROMIS. Target ranges of Ca, Pi and PTH were defined according to the 2009 KDIGO (Kidney Disease Improving Global Outcomes) guidelines.

**RESULTS:** Phosphate binders (PB) of any kind were used by 86–91% of the population. 18–21% were prescribed NCBPB/cinacalcet +/- conventional PB. Pi was unchanged over the study period ( $p=0.77$ ). There was a decrease in Ca of 0.01 mmol/L per year (95% CI=-0.02 – -0.001,  $p=0.03$ ) and increase in log(PTH) of 0.04 per year (95% CI = 0.03–0.04,  $p<0.001$ ). There was no significant change in % of patients within target range of Pi (OR=1.01, 95% CI = 0.99–1.02,  $p=0.09$ ) or PTH (OR=1.01, 95% CI=0.99 – 1.02,  $p=0.05$ ) but patients were less likely to have low PTH (OR=0.93, 95% CI=0.92 – 0.95,  $p<0.001$ ). Patients within target range of Ca decreased (OR=0.97, 95% CI=0.96–0.98,  $p<0.001$ ) and patients were less likely to be hypercalcaemic (OR=0.95, 95% CI=0.92–0.98,  $p=0.005$ ).

**CONCLUSIONS:** Following prescription of new treatments for CKD-MBD there has been a reduction of patients with high Ca and low PTH. However, the proportion of patients reaching target ranges for Pi and PTH is unchanged. These data bring into question the utility of these costly therapies.