



Service Priorities and Programmes Electronic Presentations

Convention ID: 1006

Submitting author: Ms Tsui Yan Ni

Post title: Pharmacist, Princess Margaret Hospital, NULL

The Use of Non Calcium Based Phosphate Binders in Chronic Renal Failure

Patients: A Local Hospital Data

Ng V (1), Chiu CC(1), Tam YT(2), Kwok TK(1), Tsui YN(1)

(1) Pharmacy Department, Princess Margaret Hospital (2) Department of Pharmacology & Pharmacy, the University of Hong Kong

Keywords:

Non calcium based phosphate binder

Hyperphosphatemia

Chronic renal failure

Aluminium hydroxide

Sevelamer hydrochloride

Sevelamer hydrochloride

Introduction

Hyperphosphatemia is found to be associated with increased mortality and cardiovascular morbidity in chronic kidney disease (CKD) patients. Phosphate binders are usually employed for optimal phosphate control in advanced stages of CKD. CKD staging, presence of mineral-bone-disorder and concomitant therapies should be considered in phosphate binder selection.

Objectives

(i) To determine the phosphate lowering ability of two non calcium based phosphate binders, i.e., aluminum hydroxide (AluTab) and sevelamer hydrochloride (Renagel) for CKD patients in a local hospital; (ii) To determine the incidence of adverse events of these non calcium based phosphate binders.

Methodology

This was a single-center, retrospective cohort study, with a 6-month follow up period conducted in Princess Margaret Hospital (PMH). CKD patients initiated with non calcium based phosphate binders during February 2012 to February 2014 were enrolled, except those on haemodialysis or received renal transplantation. Patient demographics, serum phosphate and calcium level (at baseline and after initiation of treatment) and medication profiles were retrieved from electronic Patient Record (ePR) for data analysis.

Result

Results: A total of 77 patients were enrolled in this study (73 AluTab patients and 4 Renagel patients). The baseline serum phosphate level was 2.48 mmol/L and 2.46 mmol/L in AluTab arm and Renagel arm respectively ($P = 0.881$). Both phosphate binders demonstrated phosphate lowering ability with reference to the reduced serum phosphate level at week 6, 12 and 24. [AluTab: 2.07 ± 0.57 mmol/L (wk6), 2.19 ± 0.49

mmol/L (wk12), 2.11±0.55 mmol/L (wk24); Renagel: 2.35±0.45 mmol/L (wk6), 2.19±0.39 mmol/L (wk12), 1.65±0.64 mmol/L (wk24)]. No statistically significant difference was shown in the phosphate reduction magnitudes between two groups in background matched subgroup analyses. No statistically significant change of serum calcium from baseline was found. No adverse event was reported from Renagel group while one mild gastrointestinal discomfort case was reported with the use of AluTab. Multiple factors, including high treatment cost and pill burden, side effect profile, and prescribing restriction as specified in Hospital Authority Drug Formulary, may contribute to the limited sample size in Renagel patient. The data statistical power and clinical application may be consequently affected. Conclusions: Aluminum hydroxide and sevelamer hydrochloride were both found to be effective and well tolerated non calcium based phosphate lowering agents in patients receiving peritoneal dialysis. With the property of not affecting serum calcium level, both agents are rational choices for renal failure patients with hyperphosphatemia and hypercalcaemia.