

# SEVELAMER CARBONATE VS. LANTHANUM CARBONATE VS. CALCIUM ACETATE/MAGNESIUM CARBONATE IN CKD PATIENTS ON HEMODIALYSIS: A RANDOMIZED STUDY

<sup>1</sup>Ekart R, <sup>2</sup>Bevc S, <sup>2</sup>Dvoršak B, <sup>2</sup>Hojs N, <sup>1</sup>Hren M, <sup>2</sup>Jakopin E, <sup>2</sup>Knehtl M, <sup>1</sup>Stropnik-Galuf T, <sup>2</sup>Hojs R  
University Medical Centre Maribor, Clinic for Internal Medicine, <sup>1</sup>Department of Dialysis, <sup>2</sup>Department of Nephrology, Maribor, Slovenia

## OBJECTIVES

The aim of this study was to compare the effects of three different phosphate binders on serum phosphorus, calcium, magnesium, C-reactive protein (CRP), albumin and intact parathyroid hormone (iPTH) in hemodialysis (HD) patients.

## METHODS

111 HD patients were assigned to 2-week phosphate binder washout phase. After washout only patients with an indication for phosphate binder (serum phosphorus  $\geq 1.4$  mmol/L) were enrolled in the study.

72 patients (mean age  $62.1 \pm 14.4$  years, 50% men) were randomly assigned to either three-times daily sevelamer carbonate (SC) á 800 mg or lanthanum carbonate (LC) á 500 mg or calcium acetate/magnesium carbonate (CA/MC) á 450/235 mg.

## RESULTS

After three weeks of treatment the mean serum phosphorus was  $1.62 \pm 0.39$  mmol/L in the SC group,  $1.68 \pm 0.36$  in the LC group and  $1.73 \pm 0.55$  in the CA/MC group. At study completion, serum magnesium levels were the highest in the CA/MC group ( $1.1 \pm 0.2$  mmol/L). Other data are presented in Table 1. Using one-way ANOVA test we did not find a statistically significant difference in serum phosphorus, calcium, CRP, albumin and iPTH between all three groups. In post hoc analysis, we found a statistically significant difference in serum magnesium after the treatment between the CA/MC and the SC group ( $P=0.01$ ) and between the CA/MC and the LC group ( $P=0.009$ ).

	Sevelamer carbonate	Lanthanum carbonate	Calcium acetate/magnesium carbonate	P
Number of patients	25	24	23	-
Age (years)	58.8±15.6	62.2±14.9	65.7±12.2	0.257
Dialysis vintage (months)	55.6±53.1	57.8±63.1	83±86.2	0.319
Phosphorus after wash-out phase (mmol/L)	2.05±0.39	1.83±0.47	1.96±0.43	0.179
Phosphorus after 3-weeks of treatment (mmol/L)	1.62±0.39	1.68±0.36	1.73±0.55	0.663
Calcium after wash-out phase (mmol/L)	2.21±0.14	2.16±0.17	2.23±0.17	0.252
Calcium after 3-weeks of treatment (mmol/L)	2.24±0.17	2.19±0.19	2.29±0.22	0.202
Magnesium after wash-out phase (mmol/L)	1±0.14	0.97±0.14	1±0.16	0.664
Magnesium after 3-weeks of treatment (mmol/L)	0.97±0.15	0.97±0.14	1.1±0.2	0.012
CRP before wash-out phase (mg/L)	7.96±17.3	7.4±7.7	10.4±15.3	0.752
CRP after 3-weeks of treatment (mg/L)	5.6±6.06	12.2±33.9	11.4±15.3	0.507
iPTH before wash-out phase (pg/mL)	368.2±170.6	330.6±158.1	404.5±254.3	0.484
iPTH after 3-weeks of treatment (pg/mL)	319.4±202.6	410.3±476.9	342±191	0.592
Serum albumin before wash-out phase (g/L)	39.9±2.2	40.8±4.6	39.5±3.4	0.424
Serum albumin after 3-weeks of treatment (g/L)	40.2±5.9	38.8±2.7	38.1±3	0.209
Hemoglobin before wash-out phase (g/L)	109.5±12.9	110.9±10.7	115.5±12	0.2
Hemoglobin after 3-weeks of treatment (g/L)	109.7±13.3	113.8±10.8	114.8±17.4	0.412

## CONCLUSIONS

Results of our study show that sevelamer carbonate, lanthanum carbonate and calcium acetate/magnesium carbonate are equivalent in reducing serum phosphorus after 3 weeks of treatment in HD patients.

Furthermore, calcium acetate/magnesium carbonate significantly increases serum magnesium.

