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NON-CALCIUM BASED PHOSPHATE BINDERS CONFER SURVIVAL BENEFIT INDEPENDENT OF PHOSPHATE REDUCTION

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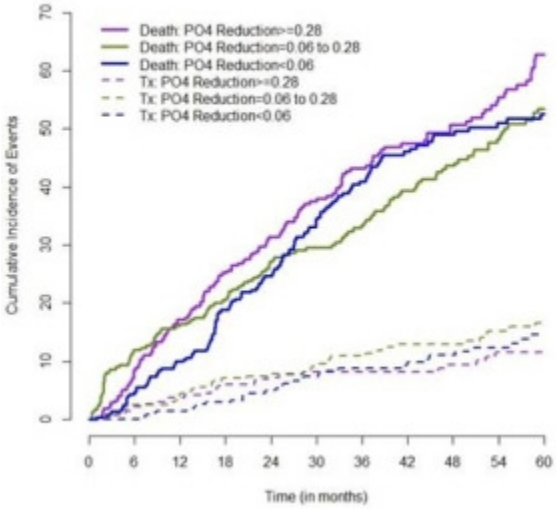
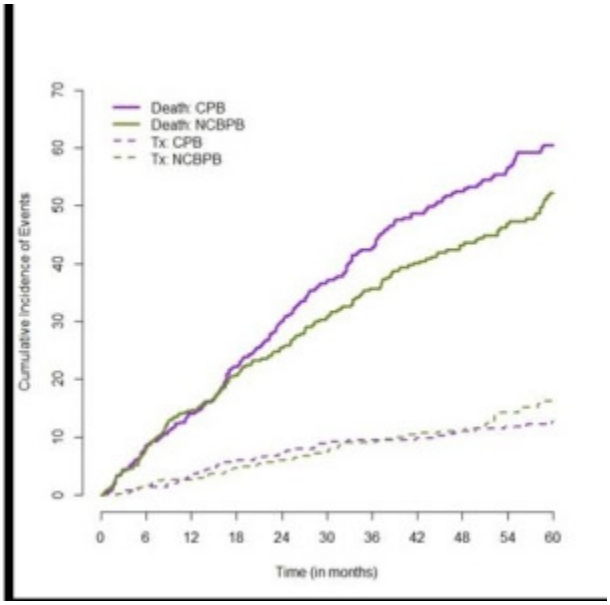
INTRODUCTION AND AIMS: Phosphate binder therapy is an area of debate in the management of dialysis patients. It is unclear whether phosphate reduction or efficacy of phosphate binders is related to survival. An observational cohort study was conducted to analyse this relationship.

METHODS: Of 3381 prevalent dialysis patients within British Columbia, Canada between 2005 to 2008, patients prescribed conventional phosphate binders (CPB) (n = 420) were compared with patients (n = 420) initiated on non-calcium based phosphate binders (NCBPB) - sevelamer or lanthanum - matched by propensity score. Phosphate (Pi), calcium (Ca) and parathyroid hormone (PTH) trend over the first 12 months of therapy was determined by the gradient of a line of best fit. The relationship between trend in phosphate, therapy type and survival was analysed up to 5 years from initiation of therapy using a piece-wise Fine and Gray competing risk approach.

RESULTS: The interaction between Pi reduction and therapy type on survival was not statistically significant (p-values>0.56). Pi reduction was associated with increased probability for death in the first 12 months (p-value=0.02): hazard ratios (HR) for reduction gradient ≥0.28 and reduction 0.06 to 0.28 were 1.91 and 1.98, respectively, compared to reduction gradient <0.06. Pi reduction had no effect on survival after one year (Figure 1). NCBPB patients had a lesser reduction in phosphate (annual reduction = 0.10 [95% CI: 0.05, 0.16]) than patients on CPB (annual reduction= 0.20 [95% CI: 0.14, 0.25]) but had a reduced HR for death of 0.72 (95% CI: 0.52, 0.99) occurring 24 months after initiation of therapy (Figure 2). Transplantation rates were similar in both cohorts (10.48% (CPB) versus 12.38% (NCBPB) after 5 years) and there was no difference in the probability of transplant with respect to phosphate trend or therapy type (Figs 1 and 2).

CONCLUSIONS: Phosphate reduction in the first year of treatment was associated with increased mortality in the first 12 months and had no effect on survival thereafter. Paradoxically, NCBPB usage confers a survival advantage unrelated to phosphate reduction. The current focus of management and targets for phosphate reduction may require re-consideration.


Death: PO4 Reduction>=0.28
Death: PO4 Reduction=0.06 to 0.28
Death: PO4 Reduction<0.06
Tx: PO4 Reduction>=0.28
Tx: PO4 Reduction=0.06 to 0.28
Tx: PO4 Reduction<0.06
Cumulative Incidence of Events
0
10
20
30
40
50
60
70
0
6
12
18
24
30
36
42
48
54
60
Time (in months)


Death: CPB
Death: NCBPB
Tx: CPB
Tx: NCBPB
Cumulative Incidence of Events
0
10
20
30
40
50
60
70
0
6
12
18
24
30
36
42
48
54
60
Time (in months)