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Phosphate binders in the food : a novel therapeutic option for the management of hyperphosphatemia in Chronic Kidney Disease(CKD) patients

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Introduction

Despite the introduction of new phosphate binders, hyperphosphatemia is still an important problem for cardiovascular calcification and for the increase mortality in CKD patients. Recently a new phosphate binder,Chitosan, was introduced as chewing gum obtaining promising results. Currently low phosphate diet is considered a cardinal point to manage hyperphosphatemia but the daily reduction of proteins increases the risk of malnutrition in CKD patients. Beverages , phosphate additives in food and drugs are considered other relevant sources of phosphate

Design, setting, participants, and measurements

We provided a novel phosphate binder (Chitosan) in a proteic snack bar during the dialytic treatment instead of the commom bread and ham sandwich . The Chitosan snack bar contained 10.50 gr. of protein and 20 mg of chitosan . We enrolled ten patients , 6 male and 4 females, aging 60.1±11.04 years undergoing periodic bicarbonate dialysis ,from 35.7±15.8 months . The patients who usually were eating bread and ham at same time in each dialysis session ate one snack bar for 3 months and performed questionaire regarding taste and personal preference . We measured before and after 3 months starting dialysis treatment serum BUN,glucose, creatinine,Na,K,Ca,P,total protein,cholesterol and triglycerides

Results

After 3 months P serum levels decreased from 6.09±0.79 mg/dl to 5.13±0.46 mg/dl (p < 0,0001) and total protein increase from 5.76 ±0.17 g/100 ml to 6.83±0.22 g/100ml (p< 0,0001) , cholesterol serum levels decreased from 196.1±24.53 mg/dl to 141.6±21.16 mg/dl (p< 0,0001) and triglycerides decreased from 130.8±35.19 mg/dl (p< 0,0001). The results of the questionaire showed that the patients preferred the Chitosan snack bar over bread and ham sandwich.

Conclusion

The phosphate binder (Chitosan) contained in the food is a novel option for the treatment of hyperphosphatemia and hypercolesterolemia in CKD patients and it may increase their therapeutic adherence.

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