

The impact of phosphate additives on haemodialysis patients' diets

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Background

Reducing the intake of dietary phosphate plays a key role in the management of Chronic Kidney Disease Mineral Bone disease (CKD-MBD). Dietetic advice has typically focussed on dietary reduction of foods high in organic phosphate. In recent years food manufacturers have increasingly added phosphate additives to processed food to help preserve product quality and safety¹. It has been reported that 90-100% of phosphate from this source is absorbed compared to 20-60% from organic sources². The aim of this study was to investigate the occurrence of these in the diets of haemodialysis patients.

Method

Twenty haemodialysis patients who had previously been advised on a low phosphate diet were selected. Participants were asked to complete a 5-day food diary recording all food and drink consumed. To help identify the presence of food additives, participants were asked to record the product brand and retain the packaging of products consumed. Food diaries were analysed to identify total organic phosphate intake and the presence of food products containing phosphate additives.

Results

Thirteen patients agreed to take part in the study and ten completed food diaries. Foods containing phosphate additives were identified in the diets of all participants with a median daily intake of 0.9 phosphate additive containing foods per day (interquartile range 0.5-1.7) with processed meats and cakes being the most common source. All patients consumed <1100mg per day of organic phosphate suggesting they were otherwise consuming the recommended levels for a patient with CKD³. All participants were prescribed phosphate binding medication and despite the presence of additional phosphate from food additives, 70% had a serum phosphate level below the recommended target of 1.7mmol/l⁴.

Conclusion

Phosphate additives exist in a wide range of processed food products¹ and were found to occur frequently in participants' diets. This would suggest that inorganic phosphate may regularly contribute to total daily phosphate intake, although the actual quantity of phosphate contributed is impossible to ascertain from current food labelling practices. Although most patients in the study had an acceptable serum phosphate level, all had been prescribed phosphate binding medication to help control this. Avoidance of phosphate additive containing foods could therefore reduce total dietary phosphate intake and potentially enable a reduction in this medication, resulting in benefits to the patient and financial savings for the NHS. However, full avoidance may be challenging and will be influenced by time available for food preparation, cooking ability, ability to check food labels and financial means. CKD patients may also be following potassium, salt and fluid restrictions, and care needs to be taken not to compromise nutritional intake. Avoidance of phosphate additives should therefore only be undertaken with the support of a specialist renal dietitian, in order to ensure advice is tailored to an individual's unique circumstances