

Phosphorus in the diet of dialysis patients

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Introduction

Due to the impaired kidney function, blood phosphorus levels rise, leading to a number of complications, such as reduced blood calcium levels, increased calcification, increased parathormone and phosphatonin levels (FGF-23), and a series of mineral-bone disorders.

Increased phosphorus levels in the blood are a consequence of inadequate nutrition. The most difficult task for dialysis patients is to maintain a normal level of phosphorus in the blood to avoid complications. About 65% of phosphorus from food is absorbed from the intestine into the blood and even more than 80% under the influence of vitamin D. The most dangerous phosphates are contained in artificial food additives and preservatives with 100% being absorbed in blood.

Objectives

To introduce the phosphorus pyramid as an original, visual, user-friendly tool for nutritional education among patients.

Methods

In order to reduce phosphate intake, dialysis patients were advised to:

1. Reduce protein intake;
2. Increase intake of foods with reduced phosphate content;
3. Cook or drink food;
4. Identify and avoid food preservatives and additives;
5. Counseling with a nutritionist;
6. Observe the nutrition pyramid with reduced intake of phosphates.

Proteins are full of phosphorus, and on average 15mg of phosphorus is found in 1g protein.

Nuts (almonds, walnuts, hazelnuts), hard cheeses, yolks, meat, intestines, fish have the largest content of phosphorus... The least phosphorous is resorbed from protein of plant origin and most from meat and dairy products. Cooking results in the demineralisation of food. Salts and minerals are derived from food and dissolve in hot water, thus reducing the content of sodium, calcium, potassium, phosphorus in these foods. Phosphorus is a major element in several additives (phosphoric acid, phosphates, and polyphosphates). These chemicals are added during industrial food production to extend shelf life, enhance taste or color, and maintain moisture and freshness. It is necessary to explain the importance of proper food intake to every patient and also draw their attention to the most common mistakes they make when eating.

Results

Case Report

B.H. (56g): Basic disease is diabetic nephropathy with P-1.98mmol/l upon admission. During treatment, phosphataemia values ranged from 1.71 to 3.01mmol/l. At that time, a non-calcium phosphate binder was administered and with strict adherence to the nutrition pyramid recommended. Subsequently, blood phosphorus level ranged from 1.71 to 0.99 mmol/l.

Conclusion

The proposed phosphorus pyramid is an original, visual, user-friendly tool for nutritional education. It can support patients and caregivers in making the right food choices by encouraging adherence to dietary prescriptions.

References

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Phosphate is a mineral that combines with calcium to form the hard structure of bones and teeth. In our bodies, the mineral phosphorus is only present bound to oxygen – called **phosphate**.

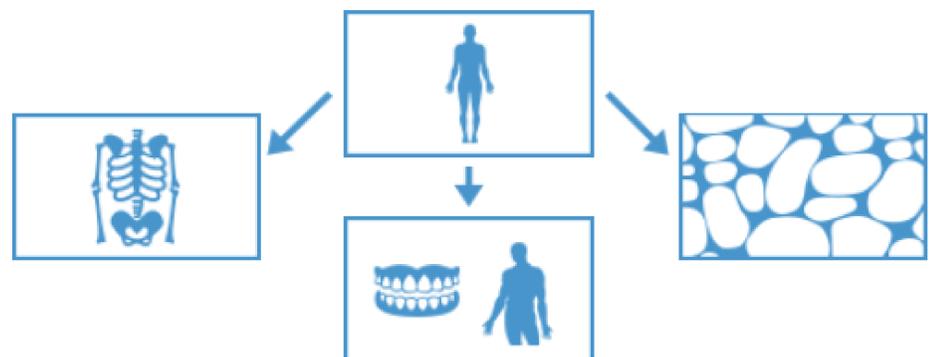


Figure 1

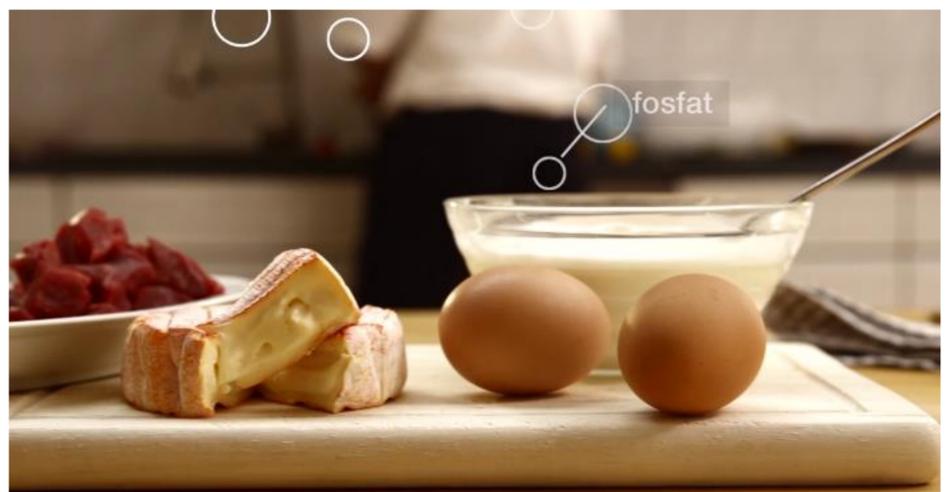


Figure 2