

Kidney disease and bones

What do kidneys have to do with bones?

- Normal kidneys activate Vitamin D, which helps make strong bones and maintain mineral levels in the body. In kidney failure, activated Vitamin D is missing so that bones may become weak and painful (even causing rickets).
- The minerals (particularly calcium and phosphate) which can no longer be built into bones are deposited around the body. This can be painful if it is under the skin. It can be dangerous if it is deposited in the circulation, leading to stroke, heart attack or gangrene.
- Disturbance of calcium, phosphate and Vitamin D levels may cause the parathyroid gland to become overactive. Too much parathyroid hormone can destroy bone, weaken muscles, cause itching and stop EPO working.
- By measuring and controlling calcium, phosphate and parathyroid hormone, these problems can be reduced.
- This will involve diet, phosphate binders and *One-Alpha* tablets.

Phosphate and food

- A wide variety of foods and drinks contain phosphate. When these foods and drinks are consumed, the phosphate in them is absorbed into the blood along with all the other nutrients. When your kidneys are not working, they are unable to get rid of any excess phosphate and the level in the blood rises. This may cause itching as well as the bone disturbance mentioned above.
- To prevent blood levels of phosphate from rising too high, you will need to reduce the amount of phosphate in your diet. The dietitian will be able to advise you on how best to decrease your intake of phosphate.
- Some of the high phosphate foods you may be advised to limit are: cheese, milk and milk products, chocolate, some types of meat and fish, some types of high fibre cereals and some types of alcoholic drinks.
- As all high protein foods contain phosphate, it may be necessary to review your diet for total protein intake. However, this is best done under the supervision of the dietitian, as it is important not to decrease your protein intake too far.

Phosphate binders

As kidney failure progresses, restricting your diet will not be enough to control your phosphate levels. You will probably be prescribed 'phosphate binders' as well. These are tablets or capsules which, when taken with food, bind together with or stick to phosphate present in food or drink. Once bound, this phosphate will pass through you undigested.

When should I take them?

They are most effective immediately before or with your first mouthful of food. If you forget, you can still take them during or immediately after the meal but never take them at a time when you are not eating.

How do I take them?

'*Calcichew*' or '*Calcichew Forte*' must be chewed before swallowing. '*Calcium 500*', '*Phosex*', '*Lanthanum*' or '*Renagel*' should be swallowed whole.

One-Alpha Calcidol

This is a prescribed drug that replaces the activated Vitamin D, which kidney patients lack. There is no point in kidney patients taking ordinary Vitamin D, cod liver oil or multi-vitamins as they are unable to activate the Vitamin D contained.

Many kidney patients will be taking '*One-Alpha*', to help their bones and control the parathyroid hormone level.

However, one of its unwanted effects is that it increases the amount of calcium and phosphate absorbed in your stomach. This is why it is important to take *One-Alpha* at bedtime, and usually alternate days, to reduce this unwanted effect.

Kidney Care Nurses 0118 322 7899 Victoria Ward 0118 322 7476

This document can be made available in other languages and formats upon request.

Renal Medicine, February 2019

Review due: February 2021