Bone Health & Warfarin

What is warfarin?

Warfarin is a medication that thins the blood. It makes it harder for blood to clot. The body's process of making a clot is called '*coagulation*'. Warfarin is an anti-coagulant.

There are 2 main groups of children who get blood thinners:

1. Children whose baseline risk of clotting is higher than normal. This is called a '*thrombophilia*', where 'thromb' is clot and 'philia' is love. Some examples include Protein C deficiency, Factor V Leiden, and Anti-thrombin III deficiency.

2. Children in whom clot formation is potentially dangerous. Some examples include artificial heart valve, liver transplant, and kidney disease.

Warfarin works by blocking Vitamin K, which is an essential factor in the coagulation cascade.

How does warfarin affect bone health?

Vitamin K is essential for the development of bones and to prevent osteoporosis. Warfarin, a vitamin K antagonist, may affect bone density when used long- term.

What is Calcium?

Calcium is the most abundant mineral in the body. Over 99% of the body's calcium supply is found in the bones and teeth where it supports their structure. Calcium is also important for proper muscle function, nerve transmission, and hormonal secretion.

What is Vitamin D?

Vitamin D is a nutrient that helps the body use calcium and phosphorous to build and maintain strong bones and teeth.

Too little vitamin D can cause low levels of calcium and phosphorous in the blood. This results in calcium being pulled out of the bones to help maintain stable blood levels. This can cause rickets and soft bones in children.

On the other hand too much Vitamin D can lead to too much calcium being deposited in the body and which can lead to calcification of the kidneys, heart, lungs and blood vessels.

What can I do?

Ensure your child is receiving adequate amounts of calcium and vitamin D. The Health Canada recommendations for daily allowance (RDA) vary by age:

AGE	Vit D	Ca
Infants aged 0-6 months	400 IU (10mcg)*	200 mg*
Infants aged 7-12 months	400 IU (10mcg)*	260 mg*
Children aged 1-3 years	600 IU (15mcg)	700 mg
Children aged 4-8 years	600 IU (15mcg)	1000 mg
Children aged 9-18 years	600 IU (15mcg)	1300 mg

*Adequate intake rather than RDA

What foods contain calcium?

Milk, yogurt and cheese are very high in calcium. Other good sources include calcium-enriched orange juice, rice beverage, and soy beverage.

In infants, breastfeeding or formula in adequate quantities provides enough calcium to meet your baby's needs.

What foods contain vitamin D?

There are only a few food sources of vitamin D. Good sources of vitamin D are fortified foods and beverages such as milk, soy beverage, orange juice and margarine. Fish, liver, and egg yolk are the only foods that naturally contain vitamin D.

Exposure to sunshine also provides vitamin D. The amount depends on season, time of day, cloud cover, smog, skin color, clothing and sunscreen.

What about supplements?

There is a wide variety of options for calcium and vitamin D supplementation. Talk to your health care provider about the choice that is best for your child.

Updated May 2021