

Therapeutic Update on Vitamin K

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Who talks about vitamin K anymore? Isn't it just a boring, one-function vitamin, only clinically relevant in exotic cases of malnutrition? This may have been the case until recently, when new findings have prompted vitamin manufacturers to include vitamin K in their multiples and their bone support formulas. What is new about vitamin K? Read on.

Most of us learned in college that vitamin K is essential because it is required for the synthesis of clotting factors such as prothrombin. As such, it is necessary to prevent excessive bleeding and can be used to counteract overdoses of anticoagulant drugs or rat poison (warfarin). True deficiencies of vitamin K are usually seen only in severe cases of malabsorption and/or long-term antibiotic use (which destroys vitamin K-producing bacteria in the gut).

Attention to the vitamin K needs of newborns has resulted from the occurrence of hemorrhagic disease of the newborn. One form of this condition is caused by dietary vitamin K deficiency and can lead to neurological damage or death in the first year of life. Exclusively breast-fed infants are at the greatest risk due to the low vitamin K content of breast milk. Prophylactic administration of vitamin K at birth is a routine precaution against this disorder in most developed countries.

Injected, rather than oral, vitamin K has been considered more effective in the prevention of hemorrhagic disease of the newborn. However, this practice has recently been challenged after the discovery of an association between vitamin K injections and childhood cancer. Oral supplementation is safe and can be made more effective when multiple doses are given during the first weeks of life to exclusively breast-fed infants. A suggested dose schedule is 2,000 micrograms at birth, on day five, and at the fourth week.

Recently, it was discovered that vitamin K is required for the synthesis of at least two proteins used in bone mineralization. One of them, osteocalcin, can be detected in the blood and has been found to be abnormal in many bone diseases. Osteocalcin is also abnormal in many postmenopausal women, but this can be corrected with large oral doses of vitamin K (1000 micrograms per day). Furthermore, in those women who tend to excrete excessive amounts of calcium in their urine, vitamin K normalizes their urinary calcium loss!

In a related report, osteoporotic patients hospitalized with femoral neck fractures were found to have only one-third of the normal level of circulating vitamin K. It is thought that subtle vitamin K deficiency may only affect the functioning of osteocalcin while leaving the clotting mechanism relatively intact. If so, there may be reason for new concern about vitamin K status of adults, especially postmenopausal women.

This has obvious implications for maintaining calcium balance and preventing bone loss in older women. Doctors who wish to screen their patients for vitamin K therapy should have the following laboratory determination done:

- Patient provides a urine sample taken after a 14-hour fast

- Laboratory performs quantitative analysis for both calcium and creatinine
- Calcium/creatinine ration is calculated. If the calcium/creatinine ratio is 0.6 or more, this indicates excessive loss of calcium which may respond to vitamin K supplementation at 1,000 mcg per day.

As the science of nutrition continues to advance, the doctor of chiropractic will likely find more and more uses for the familiar tools of nutritional therapeutics.

References

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