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## Vitamin K supplements could improve anti-blood clot control

By Stephen Daniells

28/11/2006- **Daily supplements of vitamin K could help to control anticoagulation in over half the people taking the blood thinning medication warfarin, scientists from the UK have reported.**

The result is particularly important because daily dietary control of vitamin K intake is difficult to maintain and even small changes in vitamin K intake are reported to translate into large variations in the production of clotting factors.

Additionally, because vitamin K is known to participate in blood clotting, people taking blood thinners like warfarin are usually recommended to avoid supplementation with the vitamin.

However, researchers from Newcastle University and the Royal Victoria Infirmary, Newcastle, have built on previous research that reported that unstable control of anti-coagulation is linked to low vitamin K intake (*Thrombosis & Haemostasis*, Vol. 93, pp. 872-875).

*"We hypothesised that supplementation with oral vitamin K would improve stability in patients with previously unstable control of anticoagulation,"* explained lead author Elizabeth Sconce in the journal *Blood*.

Vitamin K is traditionally less well known than vitamins A to E, but this increasing body of research, as well as increased marketing and advertising from supplement makers, is raising public awareness of vitamin K.

There are two main forms of vitamin K: phylloquinone, also known as phytonadione, (vitamin K1) which is found in vegetables such as lettuce, broccoli and spinach, and makes up about 90 per cent of the vitamin K in a typical Western diet; and menaquinones (vitamins K2), which make up about 10 per cent of Western vitamin K consumption and can be synthesised in the gut by microflora.

Lead researcher Farhad Kamali told NutraIngredients.com: *"There is evidence to suggest that vitamin K is not only essential for the production of functionally active clotting proteins required for normal haemostasis but it is also needed for bone mineralisation and vascular health."*

The new randomised, double-blind, placebo-controlled study looked at the effects of a daily vitamin K supplement (150 micrograms, about twice the RDA) or placebo on anti-coagulation in 70 warfarin treated patients with unstable anticoagulant control.

Kamali and co-workers compared the levels of anticoagulation control for six months before the study was started, and then for a further six months under supplementation/placebo conditions.

Fluctuations in anti-coagulation control, measured as a function of standard deviation, were found to have a significantly greater decrease in the vitamin K supplementation group than placebo, despite a significant reduction in the placebo group (decrease of 0.24 versus 0.11, respectively).

Out of the 35 patients receiving the supplements, 33 had significantly improved anticoagulation, with 19 of these fulfilling the criteria for having *stable control* of anticoagulation.

On the other hand, only 24 out of 33 patients in the placebo group had some improvement, with seven fulfilling the stable control criteria.

*"Concomitant supplementation of vitamin K, perhaps through reducing the relative day-to-day variability in dietary vitamin K intake, can significantly improve anticoagulation control in patients with unexplained instability of response to warfarin,"* said the researchers.

The research could also have benefits on a wider scale, they said, by reducing the frequency of visits to monitor a patient's control, reducing the associated costs of medication, and improving a patient's quality of life.

The researchers called for further study in a larger unselected warfarin-treated patients to *"demonstrate whether vitamin K supplementation leads to improved stability of anticoagulation control and subsequent reduction in the frequency of adverse events associated with warfarin therapy."*

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*"Vitamin K supplementation can improve stability of anticoagulation for patients with unexplained variability in response to warfarin"*

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