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Vitamin K administration to elderly patients with osteoporosis induces no hemostatic activation, even in those with suspected vitamin K deficiency.

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Abstract

The administration of menaquinone-4 (MK-4), one of subclasses of vitamin K2, significantly reduces bone loss in postmenopausal osteoporotic women. However, concerns have been raised about whether vitamin K administration alters the hemostatic balance by inducing a thrombotic tendency. We investigated were whether the administration of vitamin K in the form of MK-4 induced a thrombotic tendency in 29 elderly patients with osteoporosis (5 men, 24 women; age range 78.7+/-5.1 years). Patients were administered 45 mg/day (three times a day, 30 min after each meal) of MK-4 for 12 weeks. Blood samples were obtained from the patients at 0, 4 and 12 weeks after the start of MK-4 administration. A number of hemostatic parameters remained stable under the markedly increased plasma levels of MK-4. However, in patients with suspected vitamin K deficiency, whose plasma levels of vitamin K or factor VII were low, vitamin-K-dependent clotting factors such as factor VII and prothrombin were gradually increased after administration of MK-4. No changes in the sensitive molecular markers such as TAT and F1+2, which reflect the amount of thrombin generated in the blood stream, were observed, even in those patients with suspected vitamin K deficiency. These results indicate that MK-4 can be administered safely, with regard to maintaining the hemostatic balance, to osteoporotic patients receiving no anticoagulant therapy.

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