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Combined treatment with vitamin k2 and bisphosphonate in postmenopausal women with osteoporosis.

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Vitamin K2, as well as bisphosphonates, such as etidronate, alendronate, and risedronate, is widely used in the treatment with osteoporosis in Japan. Etidronate increases the lumbar bone mineral density (BMD), and prevents new vertebral fractures, in patients with osteoporosis, while alendronate and risedronate increase the lumbar and femoral neck BMDs, and prevent new vertebral and femoral neck fractures. Vitamin K2 enhances gamma-carboxylation of bone glutamic acid residues and the secretion of osteocalcin, sustains the lumbar BMD, and prevents osteoporotic fractures in patients with osteoporosis. Bisphosphonates, such as alendronate and risedronate, rather than vitamin K2, should be initially chosen for the treatment of osteoporosis, because they are more efficacious than vitamin K2. Available evidence suggest that risedronate prevents deterioration of the connectivity of the trabeculae in ovariectomized rats, whereas vitamin K2 increase the trabecular thickness, and that a combination of risedronate and vitamin K2 has a synergistic effect on preventing the deterioration of trabecular bone architecture induced by estrogen deficiency. Some studies have shown that combined treatment with etidronate and vitamin K2 appears to be more effective than etidronate alone in the prevention of new osteoporotic vertebral fractures. Based on these findings, combined treatment with vitamin K2 and bisphosphonates may be more efficacious in the prevention new vertebral fractures than a single treatment with bisphosphonate in postmenopausal women with osteoporosis. Thus, this combined treatment should be recommended for the treatment of postmenopausal osteoporosis. It is proposed that the role of vitamin K2 should be emphasized, when used in combination with bisphosphonates, especially in patients with vitamin K deficiency.

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