**Bisphosphonate has a Preventive Effect on the Recurrence of Nephrolithiasis in Men**

**Introductions and Objective:** Osteoporosis, which is characterized by a reduction in bone mineral density (BMD), is frequently detected in postmenopausal women as well as in men. Reduced BMD has been reported in urolithiasis patients with hypercalciuria as well as in those with normocalciuria. Bisphosphonates potently inhibit bone resorption and are used in the management of osteoporosis. We have reported that bisphosphonate prevents the recurrence of urinary stones in postmenopausal women. In this study, we investigated the ability of bisphosphonate to prevent calcium stone formation in **men** with osteoporosis.

**Materials and Methods**: We studied 16 men (56.5 ± 9.8 years) <70 years of age who were diagnosed with osteoporosis but without hypercalciuria. Patients on steroid or osteoporosis therapy were excluded. Patients had stones composed of calcium oxalate (CaOx) (n = 9) or CaOx + calcium phosphate (CaP; n = 7). We measured serum and urinary values in 24-hour urine specimens before and 3 months after the oral administration of 5 mg/day or 35 mg/week of **alendronate (ALN)**, a new generation bisphosphonate compound. The indexes of the ionic activity product of CaOx, AP(CaOx), and that of CaP, AP(CaP), were estimated using the Tiselius method. Twelve of the 16 patients continued treatment for 12 months.

**Results**: ALN significantly reduced the excretion of urinary calcium (162 ± 75 to 116 ± 67 mg/day; $p < 0.05$) and the AP(CaOx) index (1.55 ± 0.67 to 0.89 ± 0.79; $p < 0.05$). The AP(CaP) index tended to decrease (1.27 ± 0.75 to 0.96 ± 1.20) as well. Urinary oxalate and phosphate values showed no significant change.

**Conclusions**: The results suggest that ALN not only improves BMD and osteoporosis but also reduces the risk of calcium stone formation in men with osteoporosis. Bisphosphonate is believed to reduce the urinary excretion of calcium by improving bone metabolism and have a direct effect in the prevention of urolithiasis by preventing CaOx crystallization.