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Association between Renal Stone, Bone Mineral Density and Biochemical Parameters

Zh Maghbooli, A hossein-nezhad, H Adibi, F Karimi, AR Shafaii, B Larijani

Abstract:

Background: To investigate the relationship between renal stone formation and osteoporosis. Methods: Eight hundred thirty healthy subjects aged between 20 and 76 years were randomly selected from 50 clusters to take part in the study. Of these, 68 (8.2%) had a previous history of renal stone disease. All participants underwent clinical examination and bone mineral densitometry of the lumbar spine and femur using the dual-energy X-ray absorptiometry technique. Plasma levels of vitamin D3, calcium, phosphate, alkaline phosphatase, and parathyroid hormone were also measured. Results: Data showed that patients with a history of renal stones had a higher prevalence of osteoporosis (16.7%) and osteopenia (53.3%) than the subjects without a history of renal stone disease (11.2% and 35.7%, respectively). For both men and women the mean age of patients with a history of renal stone disease was significantly lower than patients with no disease history (men: with history 44.27+/-14.8, without history 50.28+/-12.3; P= 0.02) (women: with history 43.21+/-11.8, without history 49.06+/-9.6; P= 0.02). Female patients with a history of renal stone disease also had a significantly lower (8.74%) mean spinal bone density (P= 0.02), but there were no other significant differences in either the biochemical parameters that were measured or in the hip bone density. Conclusions: These data suggest that osteoporosis may be more prevalent in those patients that have had a history of renal stone formation.

Keywords:

Bone mineral stone

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