

Relation between Biochemical Parameters and Bone Density in Postmenopausal Women with Osteoporosis

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Abstract : Background: Osteoporosis is the most prevalent metabolic bone disease in postmenopausal women associated with reduced bone mass and increased bone fracture. Measuring bone density in the lumbar spine and hip is a reliable measure of bone mass and can therefore specify the risk of fracture. Dual-energy X-ray absorptiometry(DXA) is an accurate non-invasive system measuring the bone density, with low margin of error and no complications. The present study aimed to investigate the relationship between biochemical parameters with bone density in postmenopausal women. Materials and methods: This cross-sectional study was conducted on 87 postmenopausal women referred to osteoporosis centers in Isfahan. Bone density was measured in the spine and hip area using DXA system. Serum levels of calcium, phosphorus, alkaline phosphatase and magnesium were measured by autoanalyzer and serum levels of vitamin D were measured by high-performance liquid chromatography(HPLC). Results: The mean parameters of calcium, phosphorus, alkaline phosphatase, vitamin D and magnesium did not show a significant difference between the two groups(P-value>0.05). In the control group, the relationship between alkaline phosphatase and BMC and BA in the spine was significant with a correlation coefficient of -0.402 and 0.258, respectively(P-value<0.05) and BMD and T-score in the femoral neck area showed a direct and significant relationship with phosphorus(Correlation=0.368; P-value=0.038). There was a significant relationship between the Z-score with calcium(Correlation=0.358; P-value=0.044). Conclusion: There was no significant relationship between the values of calcium, phosphorus, alkaline phosphatase, vitamin D and magnesium parameters and bone density (spine and hip) in postmenopausal women.

Keywords : osteoporosis, menopause, bone mineral density, vitamin d, calcium, magnesium, alkaline phosphatase, phosphorus

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