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Bone Mineral Density and Frequency of Low-Trauma Fractures in Ukrainian Women with Metabolic Syndrome

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Abstract : Osteoporosis is one of the important problems in postmenopausal women due to an increased risk of sudden and unexpected fractures. This study is aimed to determine the connection between bone mineral density (BMD) and trabecular bone score (TBS) in Ukrainian women suffering from metabolic syndrome. Participating in the study, 566 menopausal women aged 50-79 year-old were examined and divided into two groups: Group A included 336 women with no obesity (BMI ≤ 29.9 kg/m²), and Group B – 230 women with metabolic syndrome (diagnosis according to IDF criteria, 2005). Dual-energy X-ray absorptiometry was used for measuring of lumbar spine (L1-L4), femoral neck, total body and forearm BMD and bone quality indexes (last according to Med-Imaps installation). Data were analyzed using Statistical Package 6.0. A significant increase of lumbar spine (L1-L4), femoral neck, total body and ultradistal radius BMD was found in women with metabolic syndrome compared to those without obesity (p < 0.001) both in their totality and in groups of 50-59 years, 60-69 years, and 70-79 years. TBS was significantly higher in non-obese women compared to metabolic syndrome patients of 50-59 years and in the general sample (p < 0.05). Analysis showed significant positive correlation between body mass index (BMI) and BMD at all levels. Significant negative correlation between BMI and TBS (L1-L4) was established. Despite the fact that BMD indexes were significantly higher in women with metabolic syndrome, the frequency of vertebral and non-vertebral fractures did not differ significantly in the groups of patients.

Keywords : bone mineral density, trabecular bone score, metabolic syndrome, fracture
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