

TRABECULAR BONE SCORE AND BONE MINERAL DENSITY IN UKRAINIAN MEN WITH VERTEBRAL FRACTURES

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Key words: *trabecular bone score, bone mineral density, osteoporosis, fracture, men, age*

Introduction. Traditionally BMD has been considered a major determinant of bone strength. However, it is shown that the bone strength and fracture risk depend on several parameters: macrogeometry of cortical bone, BMD, trabecular bone microarchitecture, bone microdamage, bone mineralization, and bone metabolism. Previous studies have found a significant decrease in the quality of trabecular bone of men while they're ageing. Nevertheless, the trabecular bone score of the Ukrainian men with osteoporotic vertebral fractures has not yet been studied.

The aim of this study is to evaluate the trabecular bone score (TBS) and bone mineral density (BMD) in men with osteoporotic vertebral fractures.

Materials and methods. We've examined 243 men aged 30-89 years, divided according to the gerontologic classification: 30-44 yrs (n=46), 45-59 yrs (n=83), 60-74 yrs (n=86), 75-89 yrs (n=28). The basic group consists of 52 men with osteoporotic vertebral fractures in the anamnesis (mean age – 59.8±13.7 yrs; mean height – 1.73±6.98 m; mean weight – 79.0±14.9 kg) and control group – of 191 men without fractures (mean age – 57.4±13.7 yrs; mean height – 1.74±6.89 m; mean weight – 76.5±9.3 kg). The BMD of PA lumbar spine and proximal femur were measured by the DXA method (Prodigy, GEHC Lunar, Madison, WI, USA) and PA spine TBS were assessed by the TBS iNsight® software package installed on our DXA machine (Med-Imaps, Pessac, France).

Results. We have observed a significantly lower TBS (L₁-L₄) in the basic group (30-44 yrs – 1.083±0.187, 45-59 yrs – 1.025±0.248, 60-74 yrs – 1.084±0.170, 75-89 yrs – 0.951±0.170) as compared to the control group (30-44 yrs – 1.276±0.121, 45-59 yrs – 1.226±0.156, 60-74 yrs – 1.150±0.175, 75-89 yrs – 1.183±0.174); F = 1.56; p<0.001. We also found the lower BMD of lumbar spine in the basic group of patients – 30-44 yrs – 0.981±0.125 g/cm², 45-59 yrs – 1.028±0.184 g/cm², 60-74 yrs – 1.014±0.158 g/cm², 75-89 yrs – 0.970±0.183 g/cm² (F = 1.52; p<0.001) and of the proximal femur – 30-44 yrs – 0.854±0.149 g/cm², 45-59 yrs – 0.873±0.139 g/cm², 60-74 yrs – 0.823±0.136 g/cm², 75-89 yrs – 0.716±0.107 g/cm² (F = 1.10; p<0.001) compared to the control group.

Conclusion. Subjects with vertebral fractures have TBS and BMD parameters significantly lower than the healthy men.

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TRABECULAR BONE SCORE ORAZ GĘSTOŚĆ MINERALNA KOŚCI U MĘŻCZYŹN NARODOWŚCI UKRAIŃSKIEJ ZE ZŁAMANIAMI KRĘGOSŁUPA

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Słowa kluczowe: trabecular bone score, gęstość mineralna kości, osteoporoza, złamanie, mężczyźni, wiek