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Bone mineral density (BMD), Fracture fisk assessment (FRAX) and Trabecular bone score (TBS) indices in postmenopausal women with different types of osteoporotic fractures

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Introduction: Bone mineral density (BMD) and Trabecular bone score (TBS) are independent parameters of bone which effectively predict osteoporotic fractures risk. FRAX® and adjusted FRAX by TBS are simple calculators which assess 10-years probability of major osteoporotic (MOFs) and hip fractures (HF). Their significance was confirmed in various studies, however, information depending on the type of osteoporotic fractures is limited.

Purpose: The purpose was to study indices of FRAX®, BMD, TBS and adjusted FRAX by TBS in postmenopausal women with different osteoporotic fractures. We examined 275 women aged >50 years, which were divided into two groups depending on previous fractures presence. The patients of the 2d group were divided according to fracture localization: Vertebral fractures (VF), Humerus fractures (HF), Ulna/radius fractures (URF), Wrist fractures (WF). BMD and TBS were measured by X-ray absorptiometry (Lunar, Prodigy), assessment of risk factors was performed by FRAX® and adjusted FRAX by TBS. FRAX scores with body mass index (BMI), BMD and TBS were calculated.

Findings: It was established that BMD of the lumbar spine/total body and TBS indices were significantly lower only in patients with VF compared to women without previous fractures (WPF) in contrast to patients with other fractures. BMD of femoral neck/total hip did not differ in any group with fractures compared to control. In addition, indices of FRAX/BMI-MOF were significantly higher for women independently of the type of fractures, however, FRAX/BMI-HF were reliably higher only at women with VF and URF compared to parameters of women WPF. FRAX/BMD-MOF and FRAX/TBS-MOF indices were significantly higher at women independently from the type of fractures except for women with HF. Parameters of FRAX/BMD-HF and FRAX/TBS-HF were higher only in patients with VF.

Conclusion & Significance: FRAX® and adjusted FRAX by TBS are important indices for fractures risk assessment in postmenopausal women with previous fractures which propose additional information without BMD measurement.

Biography

Nataliia Grygorieva received Medical Degree in 1994 and PhD degree in 1999 at Odessa Medical University (Ukraine). Since 2000, she worked in the Department of Clinical Physiology and Pathology of Musculoskeletal System at DF Chebotarev Institute of Gerontology NAMS Ukraine. She completed primary training in rheumatology and is now a rheumatologist of the highest qualification. Since 2017, she is Full Professor of medicine. Her researches focused on experimental modeling of bone and joint diseases, bone and joint pathology and women aging, premature aging, and rehabilitation. She is a Secretary of the Ukrainian Scientific and Medical Society of Gerontology and Geriatrics and a President of "Ukraine without osteoporosis and fractures" Patients Association. She is a member of Editorial Board of Ukrainian and foreign journals, author and co-author of over 350 publications in national and international journals, more than 10 monographs, more than 30 national guidelines, newsletters, and patents.

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