WORLD CONGRESS
ON OSTEOPOROSIS,
OSTEOARTHRITIS AND
MUSCULOSKELETAL
DISEASES

# VIRTUAL CONGRESS
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AbstractBook

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hip fractures − 2.4 [0.8-4.2] vs. 0.5 [0.3-1.2]% (Z=5.4; p<0.001)). Similar differences between the studied groups were observed in FRAX questionnaire parameters with BMD calculation.

**Conclusion:** BMD in Ukrainian women with SLE was significantly lower than in the healthy females; however, the risk of major osteoporotic and hip fractures was significantly higher than in the healthy subject that requires the dynamic monitoring of bone health and risk of fracture in patients with SLE.

## P494

### QUS CHARACTERISTICS IN NORMAL IRANIAN POPULATION

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**Objective:** Quantitative ultrasound (QUS) is a bone densitometry method that is less expensive and more portable than DXA. It is also noninvasive. QUS parameters include speed of sound (SOS), broad band ultrasound attenuation (BUA), and stiffness index (SI). This study defined normal values of QUS parameters in Iranian men and women.

**Methods:** QUS of heels measured in 258 Iranian men and women, aged 20-76 y/o. They were participants of Iranian Multicenter Osteoporosis study (IMOS), selected by randomized sampling. QUS device was an Achilles+ (GE-Lunar) device.

**Results:** Percentiles of SI (2.5%, 50%, and 97.5%) determined. We found a good agreement between the Iranian reference values and western reference (used by device) value in defining normal and osteoporotic people (k=0.875).

**Conclusion:** Results from this study suggest that QUS of the heel may be a good method for diagnosis of low bone mass in different regions in the world.

## P495

### DOCTORS ARE A RISK GROUP FOR THE DEVELOPMENT OF OSTEOPOROSIS, PROBLEMS EXAMINATIONS AND TREATMENTS

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**Objective:** Among medical workers there is a fear of examination and there is a low adherence to the prevention and treatment of a number of diseases, including osteoporosis (OP). We started a course of training lectures for the basics of diagnosis and treatment of OP with a survey of students and a practical lesson following it. Purpose of the study. Assess the frequency of decreased BMD in physicians, raise awareness of the frequency of decreased BMD, assess attitudes towards therapy.

**Methods:** The risk of fractures was calculated according to FRAX in physicians of therapeutic specialties; A. B. Zborovsky, Volgograd. BMD was determined using the Lunar DPX (GE) apparatus.

**Results:** The average age of 59 students was 54±10.55 (M±σ) years, 36 women aged 50 y and older, 23 under the age of 50 y, the average BMI - 26.51±4.8 kg/m$^2$. In 47 (79.6%) out of 59, a decrease in BMD below normal values (according to the T/Z criterion, according to age) was detected in at least two positions. In 15 (25.4%) of them, a decrease in BMD by T-criterion by -2.5 SD and below was detected, which corresponds to the diagnosis of osteoporosis, 9 had previously undergone DXA, was diagnosed with OP, and prescribed drug therapy. 3 people take medicines on a regular basis. 6 previously treated, the last 2-3 y were not examined and did not take anything. In 6 listeners, OP was detected for the first time, for 2 listeners the diagnosis of OP was a complete surprise, 4 suspected a possible decrease in BMD, but did not expect such low indicators to be detected (T-test -2.5 and -2.6 SD for the lowest values). Of the 5 students under 50 y of age with a decrease in BMD according to the Z criterion <-2.0 SD, 4 had significant risk factors. No obvious risk factors were identified in 1 student. Mean TL1-L4 values were -1.26±1.06 SD [0.8 to -3.1], ZL1-L4=-0.68±0.9 [+1 to -2.7], mean values for T Neck were -1.14±1.04 [range 1.5 to -2.7], Z Neck -0.26±0.88 [range 1.9 to -1.7].

**Conclusion:** As a result of the study, a high percentage of detecting a decrease in BMD in female doctors was found. Low compliance with treatment was found in doctors over 50 years old, a positive attitude towards preventive measures among younger doctors. Invited doctors with a history of low-traumatic fractures did not come for examination, citing high employment. Conducting theoretical and practical classes in small groups based on the assessment of their own survey data allows increasing the interest of practitioners in studying the problem of OP. The listeners are most interested in the DXA procedure itself with protocol decoding. When creating motivation for the personal interest of

doctors in maintaining personal bone health, the likelihood of a more attentive attitude of doctors to the prevalence of OP among the population increases.

## P496

### A COMPARISON OF BACK PAIN CHARACTERISTICS AND ASSOCIATED SYMPTOMS IN SUBJECTS WITH AND WITHOUT SPONDYLOARTHRITIS

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**Objective:** To compare characteristics of back pain in subjects with and without the diagnosis of spondyloarthritis (SpA) in the Ukrainian population.

**Methods:** The questionnaire with 39 questions has been developed to determine the prevalence and main characteristics of back pain. A total of 1799 individuals of both sexes aged from 15-88 y were interviewed. Among the respondents, there were 1558 individuals with back pain at the current time or in history, including 82 patients with a confirmed diagnosis of SpA before the start of basic therapy. Subjects, who didn't notice back problems (pain, stiffness, discomfort), were excluded from the study (13,4%). Calin and ASAS criteria were used for the detection of inflammatory back pain. Fisher's exact test and the chi-square test have been used to determine statistically significant differences.

**Results:** Only half (55.5%) of subjects with back problems without confirmed SpA consulted the doctor. At the same time, 18.2% of them met ≥4 from 5 Calin criteria and 8.4% ASAS criteria. The patients with SpA significantly more often compared with subjects with back pain without SpA had: the duration of pain for more than 3 months (82.9 vs. 35.2%), waking up at night with back pain (58.5 vs. 19.8%), morning stiffness (78 vs. 48.4%), uveitis (4.9 vs. 1.0%) and heels pain (39 vs. 23.2%). Simultaneously they were less likely to have a sudden onset of pain (29.3 vs. 41.5%), 60.9 vs. 75.4% reported a reduction of pain after rest, 69.5 vs. 47.9% after physical activity (compare with subjects without SpA). However, we found no differences in the back problems in relatives or buttocks pain or scleritis in these two groups. Joint pain, swelling, or diagnosed arthritis were significantly more common in patients with SpA (64.6%, 40.2%, 43.9%, respectively) than in individuals with back pain without SpA (36.5%, 16.2%, 7.5%). In most cases, patients with SpA used NSAIDs to relieve pain (89.1 vs. 49.3%).

**Conclusion:** The high prevalence of inflammatory back pain in subjects without SpA points to the need for targeted screening of such patients to detect SpA. The key differences of the pain syndrome in SpA were its longer duration, reduction after physical activity, night pain, peripheral joint involvement, back pain at night.

## P497

### PREGNANCY-EXACERBATED SEVERE OSTEOPOROSIS IN A PATIENT WITH OSTEOGENESIS IMPERFECTA DUE TO NOVEL MUTATION IN LRP5 GENE

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Objective: Osteogenesis imperfecta (OI) is a collagen related disorder with an autosomal inheritance that is characterized by low bone density leading to recurrent fractures and deformities. There has been the identification of diverse mutations related to OI and one of them is the mutation of the *LRP5* gene, but only a few mutations in *LRP5* have been published. According to previous reports, *LRP5* allelic variations contribute significantly to the determination of vertebral bone mass and size and appear to be an important genetic factor of susceptibility to osteoporosis and vertebral fractures. We present a clinical case of a young woman with severe osteoporosis and multiple fractures caused by a novel variant of mutation in *LRP5* gene.

Case report: A 36-yo woman with joint hypermobility and a history of several low-traumatic and traumatic limb and one thoracic vertebra fractures at a young age presented 2 months postpartum due to additional seven low-traumatic vertebral fractures. OI was suspected at the age of 8 y.o., but no further examination/treatment was performed. Family medical history of fractures/osteoporosis was negative. Genetic testing was performed at mid-pregnancy before exacerbation of OI. From 17 genes in the panel of OI a heterozygous not previously described missense mutation c.4028 G>A, p.Cys1343Tyr was found in exon 19 of *LPR5* gene and predicted to be pathogenic. At 36 weeks of her first pregnancy, she started experiencing acute back pain, reaching the maximum after childbirth. Lactation was medically stopped at 1 month. DXA confirmed severe osteoporosis (Z-score of L1-L4 -3.9SD, max loss at L1 -4.7SD, total hip -2.1SD, TBS 1,158 defined degraded bone microarchitecture). MRI demonstrated multiple consolidated fractures of the thoracic spine. The laboratory data indicated high levels of P1NP and CTx, consistent with intense bone remodeling, and 25(OH)D deficiency (18 nmol/l) with normal $Ca_{adj}$ and PTH.

Conclusion: Our case shows a novel variant of mutation in *LRP5* gene that caused a young-onset osteoporosis and multiple fractures with exacerbation during pregnancy. The novel mutation reported here expands the spectrum of genetic pathology underlying OI and will help in the future to carry out a more accurate diagnosis of OI.