WORLD CONGRESS
ON OSTEOPOROSIS,
OSTEOARTHRITIS AND
MUSCULOSKELETAL
DISEASES

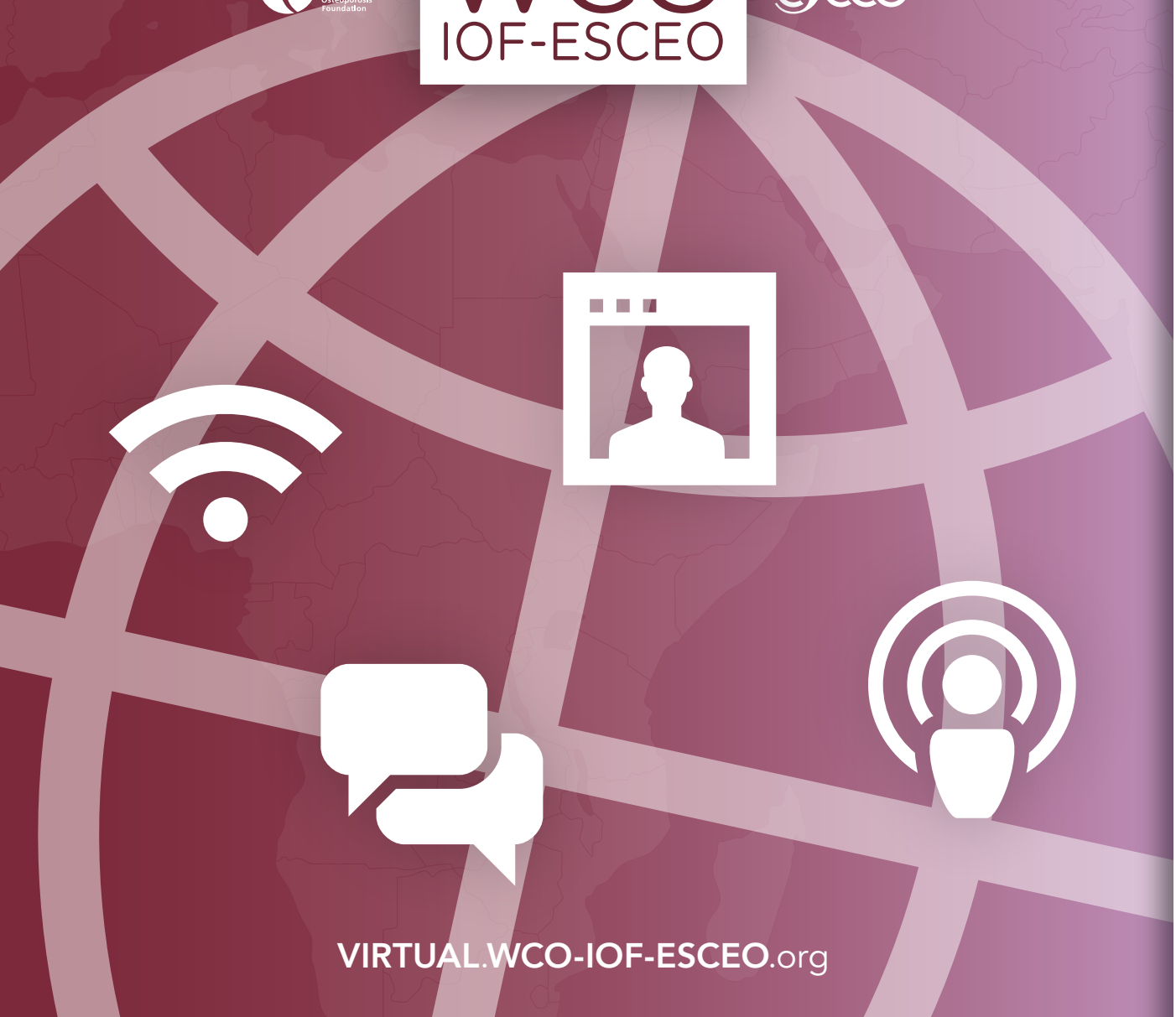
VIRTUAL CONGRESS

August 20-22, 2020

IOF International Osteoporosis Foundation

WCO IOF-ESCEO

ESCEO



VIRTUAL.WCO-IOF-ESCEO.org

AbstractBook

P647

OSTEOPOROSIS, FALLS AND FRACTURES IN PATIENTS WITH SYSTEMIC SCLEROSIS

O. Dobrovolskaya[1], N. Demin[1], L. Shornikova[1], S. Alamankina[1], N. Toroptsova[1]

[1]V.A. Nasonova Scientific and Research Institute of Rheumatology, Moscow, Russia

Objective: To evaluate BMD, frequency of falls and fractures in patients (pts) with systemic sclerosis (SSc).

Methods: 191 pts with SSc were recruited: 160 women (mean age 51±13 y) including 107 postmenopausal, and 31 men (mean age 53±14 y). DXA to measure BMD of lumbar spine (LS), femoral neck (FN) and total hip (TH) was performed. Personal data and data regarding disease were collected by using a questionnaire.

Results: 68% women and 55% men had low BMD: osteopenia in 30% and 32% and osteoporosis (OP) in 38% and 23%, respectively. OP was determined in 21% premenopausal and 50% postmenopausal women. LS, FN and TH BMD associated with BMI (R (Spearman)=0.3, R=0.41, R=0.49, respectively) – for whole group, duration of postmenopause (R=-0.56, R=-0.66, R=-0.63, respectively) - for postmenopausal women. BMD of LS and FN correlated with age (R=-0.22, R=-0.23, respectively), duration of SSc (R=-0.32, R=-0.31, respectively), glucocorticoid (GC) cumulative dose for LS only (R=-0.31). 25% pts (8% premenopausal women, 35% postmenopausal women and 25% men) had osteoporotic fractures in the past. 4% postmenopausal women had two or more fractures. Fractures of distal forearm and vertebrae were the most frequent: 7% and 14% pts, respectively. 3% pts had ankle or humerus neck fractures and 4% – other localizations. None of the pts had hip fracture. 24% pts reported falls in the year previous to the study, in 4% of cases of falls - fractures occurred. Pts with low BMD had a risk of falls and fractures about 3 times greater than pts with normal BMD (OR 2.93; 95%CI: 1.11-8.01 and OR 2.58; 95%CI: 1.04-6.6, respectively).

Conclusion: 38% of women and 23% of men with SSc had OP. 25% pts had already osteoporotic fractures. Age, BMI, the duration of postmenopause, disease duration and GC cumulative dose were associated with low BMD. Pts with low BMD had an increased risk of falls and fractures.

P648

IMPACT OF DENOSUMAB ON BONE MINERAL DENSITY IN PATIENTS WITH PRIMARY HYPERPARATHYROIDISM

A. Eremkina[1], A. Gorbacheva[1], J. Krupinova[1], E. Bibik[1], O. Knyaseva[1], N. Sasonova[2], N. Mokrysheva[1]

[1]Endocrinology Research centre, Department of parathyroid gland pathology, [2]Endocrinology Research centre, Department of Diagnostic Radiology, Moscow, Russia

Objective: Primary hyperparathyroidism (PHPT) is often associated with reduced BMD. Denosumab is a human monoclonal antibody that binds receptor activator of nuclear factor κB ligand and thereby reduces osteoclast-mediated bone resorption. Studies of the denosumab administration in individuals with PHPT-related osteoporosis are limited. We aimed to evaluate the effect of denosumab on BMD in patients with PHPT-associated osteoporosis compared to parathyroidectomy. **Methods:** We conducted a retrospective cohort study based on medical record analysis of 16 patients with PHPT-related osteoporosis, who refused from the surgical treatment and 22 patients after parathyroidectomy. The analysis included the biochemical markers of calcium-phosphorus metabolism at the baseline and every 3 months; BMD at the lumbar spine (LS), femoral neck (FN), total hip (TH) and radius 33% (R33%) using DXA at the baseline and after 12 months. The BMD dynamics was evaluated using the Wilcoxon test ($p<0,05$). **Results:** The patients in denosumab group (mean age=71.5 y, range 66-76) had mild PHPT (mean total calcium 2.68 mmol/l [2.61;2.73]; mean PTH 96.8 pg/mL [79.45;173.9]); normal GFR 82.5 ml/min/1.73m^2 [78;90], and all had BMD T-score ≤ -2.5 SD at least in one area. After 12 months of denosumab therapy, there was a significant increase in BMD in TH (0.8 g/cm^2 [0.69;0.85] vs. 0.8 g/cm^2 [0.69;0.88, p=0.03]) and decrease in R33% (0.55 g/cm^2 [0.5;0.6] vs. 0.47 g/cm^2 [0.44;0.53], p=0.007), while LS and FN values did not show any significant changes. Compared to conservative treatment, parathyroidectomy improved the initial values of BMD in LS ($p<0.001$), FN ($p<0.001$), TH ($p<0.001$), except R33% (p=0.17). Additionally, we evaluated the effect of denosumab on calcium levels at 3 months after administration, and a significant decrease was noted (2.48 mmol/l [2.39;2.59], p=0.001) with no changes in PTH and GFR levels. No new fractures were registered within 12 months in both groups. **Conclusion:** Parathyroidectomy is associated with significant improvement of BMD and should be considered for all patients with PHPT in order to reduce the fracture risk. However, denosumab could stabilize and even improve BMD as well as significantly reduce the calcium level in PHPT patients. Denosumab may be a useful alternative among PHPT patients, if the parathyroidectomy has to be delayed or contraindicated.

P649

RELATIONSHIPS BETWEEN RHEUMATOID ARTHRITIS ACTIVITY AND XANTHINE OXIDASE, XANTHINE DEHYDROGENASE, AND SUPEROXIDE DISMUTASE PLASMA ACTIVITIES

S. A. Bedina[1], E. E. Mozgovaya[1], A. S. Trofimenko[1], S. S. Spitsina[1], M. A. Mamus[1], E. A. Tikhomirova[1], I. I. Zborovskaya[1]

[1]Federal State Budgetary Institution, Research Institute of Clinical and Experimental Rheumatology A.B. Zborovsky

Objective: To study relationships between rheumatoid arthritis (RA) activity and xanthine oxidase (XO), xanthine dehydrogenase (XDG), and superoxide dismutase (SOD) plasma activities.

Methods: 71 adult RA patients (46 females and 25 males, mean age 43.2±3.6 y, mean disease duration 11.9±2.6 y) and 30 healthy controls were included in the study. Diagnosis of RA had been established using ACR/EULAR 2010 criteria. The RA activity was measured using the Disease Activity Score of 28 joints (DAS28).

Low RA activity (DAS28 ≥2.6 to ≤3.2.) was determined in 33,8% of patients, moderate RA activity (DAS28 >3.2 to ≤5.1) - in 57.7% of patients, high RA activity (DAS28 >5.1) - in 8.5% of patients. Plasma enzymatic activities were measured spectrophotometrically (1). Statistical comparison tests are selected in line with common guidelines, differences were considered significant when $p<0.05$.

Results: Reference intervals (M±2σ) for XO, XDG, and SOD activities were 2.28–5.12 nmol/min/ml, 3.96–7.24 nmol/min/ml, and 3.13–6.58 units, respectively. Enzymatic patterns in plasma of entire RA group are characterized by increase of both XO and SOD activities ($p<0.001$ for every enzyme). Activities of these two enzymes positively correlated with RA activity. High disease activity is conversely associated with decreased XDG activity ($p<0.001$), and negative correlation between the latter biomarker and DAS28 score exists.

Conclusion: The results demonstrate strong influence of active inflammation in RA on enzymatic pattern of purine metabolism enzymes, namely plasma XO, XDG, and SOD. These changes can also modulate anticitrulline autoimmunity through changes in induction of citrulline-rich neutrophil extracellular traps, thus enhancing rheumatoid autoimmunity.

Reference: 1. Martemyanov VF et al. Int J Applied Fundament Res 2015;12:1048.

P650

SARCOPENIA IN WOMEN WITH RHEUMATOID ARTHRITIS: FREQUENCY AND RISK FACTORS

O. Nikitinskaya[1], O. Dobrovolskaya[1], N. Demin[1], Z. Kolchidova[1], A. Feklistov[1], N. Toroptsova[1]

[1]V.A. Nasonova Scientific and Research Institute of Rheumatology, Moscow, Russia

Objective: To assess the frequency of sarcopenia (SP) according to EWGSOP2 criteria and factors associated with it in women with rheumatoid arthritis (RA).

Methods: 79 women (aged 40-75 y) with RA were enrolled in the study. We analyzed clinical data: age, BMI, disease duration, methotrexate use, glucocorticoid (GCs) use, anthropometric measurements, C-reactive protein level, disease activity score in 28 joints-erythrocyte sedimentation rate, BMD of the lumbar spine, femoral neck (FN), total hip (TH) and body composition by DXA (Hologic Discovery). Also, muscle strength and functional tests were performed.

Results: 73 (92.4%) patients had probable SP, 20 (25.3%) pts had confirmed SP, including 9 (11.3% of the total group) – severe SP. There was no correlation between the patients' age and SP, while the duration of RA in women with SP was significantly greater than in pts without SP ($p=0.006$). There were significant correlations between appendicular lean mass and BMI, GCs use, methotrexate dose, creatinine and urea acid serum concentration, BMD and falls frequency. In univariate logistic regression analyses, BMI (OR 0.76; 95%CI: 0.64-0.91), prior fractures (OR 2.40; 95%CI: 1.07-101.1), disease duration (OR 1.10; 95%CI: 1.03-1.17), use of GCs (OR 4.08; 95%CI: 1.29-12.94), FN BMD (OR 0.61; 95%CI: 0.37-1.0), TH BMD (OR 0.62; 95%CI: 0.38-1.0), appendicular fat mass index (OR 1.66; 95%CI: 1.45-1.97), serum creatinine level (OR 0.96; 95%CI: 0.93-1.0) were associated with SP.

Conclusion: According EWGSOP2 criteria confirmed SP was found in 25.3% RA pts, including 11.3% women with severe SP. BMI, prior fractures, disease duration, FN and TH BMD, appendicular fat mass and serum creatinine level were associated with SP in RA women.

P651

OSTEOPOROSIS AND SARCOPENIA IN WOMEN WITH OSTEOARTHRITIS

N. Toroptsova[1], O. Dobrovolskaya[1], N. Demin[1], A. Menshikova[1], D. Sebzuhova[1]

[1]V.A. Nasonova Scientific and Research Institute of Rheumatology, Moscow, Russia

Objective: To determine the frequency of osteoporosis (OP) and sarcopenia (SP) in patients with osteoarthritis (OA).

Methods: A cross-sectional study of 57 women (age median 63 [59; 68] y) with OA was conducted. We assessed clinical data: age, BMI, disease duration, anthropometric measurements, muscle strength and function. A DXA to measure fat mass, lean mass, and bone mass in the whole body and BMD of lumbar spine (LS), femoral neck (FN) and total hip (TH) was performed. Criteria of EWGSOP2 were used for diagnosis of SP. OP was determined in accordance to WHO criteria.

Results: Mean BMD was 0.906±0.134 g/cm^2 in LS, 0.721±0,143 g/cm^2 in FN and 0.854±0.223 g/cm^2 in TH. Low BMD was detected in 68.3% patients: OP - in 10 (17.5%), osteopenia – in 29 (50.8%) women. 18 (31.6%) patients had normal BMD in all measurement's areas. OP in LS and FN was in 17.5% and 3.5% patients, respectively ($p<0.05$). According to EWGSOP2 probable SP was found in 31 (54.4%) women with OA. Mean appendicular mass index (AMI) was 7.2±0.9 kg/m^2. Only 2 (3.5%) patients had confirmed SP, one of them had severe SP and OP. 2 (3.5%) patients had low AMI, normal muscle strength and OP. BMI >30 kg/m^2 was in 22 (38.6%) women, 40 (70.2%) patients had total fat >35% by DXA measurement. Among women with low muscle strength 25 (80.7%) had overfat and only 1 (1.8%) woman with overfat had low AMI.

Conclusion: The frequency of OP was 17.5% and osteopenia – 50.8% in women with OA. Probable sarcopenia was detected in 54.5% and confirmed sarcopenia was diagnosed only in 3.5% patients. 80.7% women with low muscle strength had overfat according to DXA. Women with OA was characterized by the presence of overfat with low muscle strength without reducing muscle mass.