Osteoporosis

AB0820 FREQUENCY OF OSTEOPOROSIS AND ASSOCIATED RISK FACTORS IN MEXICAN PATIENTS WITH RHEUMATOID ARTHRITIS

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Background: The risk of osteoporosis in patients with rheumatoid arthritis (RA) is well described and may be associated with genetic and environmental factors. The frequency of generalized osteoporosis in different studies is variable.
Objectives: The aim of the study was to investigate the frequency of osteoporosis as well as to describe the risk factors in RA population.
Methods: Retrospective study, including patients with RA who had at least 2 densitometries in their follow up. We collected demographic characteristics, use of glucocorticoids (GC), other medications and antibody profile. Variables were compared between groups with or without osteoporosis. The frequency of osteoporosis was calculated according to the T-score and logistic regression was performed to explore the association of osteoporosis and relevant variables. Statistical analysis was performed using R software version 3.2.1. Baseline characteristics were compared between groups of patients (osteoporosis in the lumbar spine, femoral neck and hip) defined according to the T-score results. We used x^2 or Fisher test for categorical variables as appropriate and Wilcoxon test for continuous variables. A logistic regression model was used to explore the relationship between osteoporosis and variables that could contribute as risk factors.
Results: One hundred and five patients were included, 96.2% were women, RA evolution of 7 (IQR 8) years. The frequency of osteoporosis was: lumbar spine 55.2%, hip 12%, and femoral neck 25.7%. Patients with lumbar spine osteoporosis had higher age (62 vs 58 years, p=0.13), lower weight (57 vs 63.8 kg, p=0.00004) and higher FRAX scores (26.5 vs 11.5, p=0.004; 8.5 vs 2.4, p=0.02). The associated risk factors were: weight (OR 1.09, 95% IC 1.03–1.15, p=0.001), GC use (OR 4.36, 95% IC 1.0–19.89, p=0.049), menopause (OR 22.78, 95% IC 2.73–190.12, p=0.003). There was no association with disease activity (DAS28-ESR) (OR 0.64, 95% IC 0.42–0.96, p=0.049).

Multivariate logistic regression analysis of osteoporosis associated factors

	OR	95% IC	P value
Age	1.01	0.96–1.07	0.553
Weight	1.09	1.03–1.15	0.001
DAS28-ESR	0.64	0.42–0.96	0.034
Glucocorticoids	4.36	1.00–18.89	0.049
Menopause	22.78	2.73–190.12	0.003
ACCP	2.00	0.38–10.47	0.409

OR: odds ratio, IC: confidence interval, DAS28-ESR: Disease Activity Score, ESR: erithrosedimentation rate.

Conclusions: The frequency of lumbar spine osteoporosis in our population was similar to that reported in previous studies (38.9%>50%). In our study only significant association with weight, GC use and menopause was observed
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Disclosure of Interest: None declared
DOI: 10.1136/annrheumdis-2017-eular.5678

AB0821 HIGH PREVALENCE OF VITAMIN D3 DEFICIENCY IN PATIENTS WITH RHEUMATIC DISEASES AND MUSCULOSKELETAL DISORDERS IN CYPRUS

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Background: Vitamin D3 (vitD) deficiency has been associated with an increased risk of a wide range of acute and chronic diseases including rheumatic diseases. Low serum 25(OH)D levels has been reported in mediterranean countries but little is known about the sunny island of Cyprus.[1,2]
Objectives: To assess vitamin D status among Cypriot patients with various rheumatic diseases (RD) and non-inflammatory musculoskeletal disorders (MSD).
Methods: Serum levels of 25(OH)D were randomly measured in 277 Cypriot patients with RD and MSD who attended the rheumatology outpatient clinics at the General hospitals of Larnaca and Ammochostos in 2016. 84/277 patients were receiving vitD supplements and excluded from analysis. From the rest 193 patients (female/male [F/M]:151/42, mean age:58, rage:21–89), 69 had rheumatoid arthritis (RA) (F/M:54/15, mean age:62, range 27–83), 31 seronegative spondyloarthropathies (SpA) (F/M:13/18, mean age:54, rage:21–73), 65 MSD (e.g. osteoarthritis, back pain, neck pain, arthralgia) (F/M:61/4, mean age 56, range 21–82), 16 autoimmune diseases (lupus, sjogren's, scleroderma) (F/M:15/1, mean age:61, rage:45–79)) and 12 various other RD (F/M:8/4, mean age 55, rage 21–89). 20 patients had additionally Hashimoto's thyroiditis (F/M:18/2, mean age:56, rage:28–73).
Results: The mean serum vitD levels in all patients were 20.4 ng/ml (range 3.2–56.8 ng/ml). VitD deficiency (<20 ng/ml) was found in 122/193 patients (63%), insufficiency (21 to 29 ng/ml) in 49/193 patients (25%) and sufficiency (>30 ng/ml) in 22/193 patients (11%).[3] The mean values (range) of vitD levels and the percentage of patients that had vitD deficiency, insufficiency and sufficiency per disease category were; RA: 19.8 ng/mL (8.1–53.3 ng/ml), 64%, 28% and 9% respectively, spa: 21.9 ng/ml (7.2–54.0 ng/mL), 48%, 35% and 16% respectively, MSD: 20.3 ng/ml (6.6–48.0 ng/ml), 63%, 28% and 9% respectively, autoimmune diseases: 17.9 ng/ml (3.20–37.00 ng/ml), 81%, 6% and 13% respectively, other RD: 22.7 ng/ml (9.0–56.8 ng/ml), 75%, 0%, 25% respectively and Hashimoto's thyroiditis: 18.8 ng/ml (7.2–37.0 ng/ml), 80%, 5% and 15% respectively. Analysis of the total number of patients showed significant differences in vitD levels and rates of vitD deficiency among females and males (19.3 ng/mL, [range 3.2–54.0 ng/mL], vs 23.7ng/mL, [range 7.2–56.8 ng/mL] [p=0.009] and 70% vs 43% respectively). Seasonal variations or age-related differences in vitD levels were not observed in this study.
Conclusions: High rates of vitD deficiency were observed in patients with RD and MSD in the island of Cyprus despite the sunny climate. Avoidance of sun exposure is presumed to be the main reason. Further studies are needed.
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Disclosure of Interest: None declared
DOI: 10.1136/annrheumdis-2017-eular.6647

AB0822 CLINICAL FEATURES AND PREDICTIVE FACTORS OF ORAL BISPHOSPHONATE-RELATED OSTEONECROSIS OF THE JAW: AN ANALYSIS OF 8 CASES IN A SINGLE INSTITUTION

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Background: Oral bisphosphonates (BPs) have been increasingly prescribed for the treatment of and prophylaxis for osteoporosis over the past decade. More than 190 million prescriptions for oral BPs have been dispensed worldwide, and, thus, the number of patients that develop oral BP-related osteonecrosis of the jaw (BRONJ) is expected to increase in the future. Although previous studies have investigated oral BRONJ, predictive factors have not yet been identified [1].
Objectives: The aim of the present study was to clarify the clinical features and predictive factors of oral BRONJ.
Methods: We included 8 patients who had taken oral BPs and were diagnosed with BRONJ at Mitsui Memorial Hospital (Tokyo, Japan) between 2011 and 2016. The following details were collected for each patient from a review of medical charts: sex, age, type of BP used, duration of BP administration, co-morbidities, laboratory values at presentation including hemoglobin, albumin, and serum creatinine values, clinical stage of the lesion, site affected, and pathological findings. Laboratory values of patients with BRONJ were compared with those of 242 patients (as a control group) who were prescribed BPs in October 2016 at our hospital. The Mann-Whitney U-test and chi-squared test were used for statistical comparisons between the oral BRONJ and control groups. Risk factors for BRONJ were assessed using multivariate analyses with a logistic regression analysis. All analyses were performed using SPSS ver. 21.
Results: The mean age and female ratio in the oral BRONJ and control groups were 74.5±13.8 years and 75.0%, and 71.1±12.7 years and 66.1%, respectively (p=0.26, p=0.61). The mean interval between the initiation of BP therapy and a confirmed diagnosis was 45.9±35.5 months. Seven patients had lesions in the mandibular bones and alendronate was used in six cases. Oral BPs were administered to three patients with rheumatoid arthritis or multiple sclerosis, all of whom were given a maintenance dose of corticosteroids. The remaining three out of 5 oral BP users developed BRONJ after dental extraction. Regarding laboratory results, serum albumin values were significantly lower in the oral BRONJ group than in the control group (3.7±0.3 g/dl and 4.2±0.4 g/dl, respectively, p<0.01). Serum hemoglobin levels were slightly lower in the oral BRONJ group than in the control group (11.3±1.3 g/dl and 12.4±1.7 g/dl, respectively, p =0.06). A multiple logistic regression analysis identified serum albumin levels as the only significant predictive factor for oral BRONJ (OR=0.14; 95% CI 0.03–0.71, p<0.05). A pathological examination was available in six patients, with Actinomycetes being identified as the causative species in 4.
Conclusions: Oral BRONJ mainly developed in patients with long-term corticosteroid use for an underlying illness or those who underwent dental extraction, and hypoalbuminemia was the only laboratory marker identified as a predictive factor for BRONJ.

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Disclosure of Interest: None declared
DOI: 10.1136/annrheumdis-2017-eular.2506

AB0823 EVALUATION OF OSTEOPOROSIS AND FRACTURES IN PATIENTS WITH DIABETES MELLITUS TYPE 2: RESULTS OF A 5-YEAR FOLLOW-UP

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Objectives: The aim of the study is to determine the characteristics of bone mineral density (BMD) and the the prevalence of fractures of the vertebral fractures and long bones in men with diabetes mellitus type 2 on the basis of 5-year prospective study.
Methods: 251 males (60.56±8.7years) were examined. The patients were divided into 2 groups: patients with type 2 diabetes mellitus (n=65) and patients without disorder of carbohydrate metabolism (n=186). All patients underwent DXA-definition of BMD (g/cm^2), T-score of the spine and bones of the femur. Dynamic observation for 5 years and the determination of vertebral fractures and long bones.
Results: BMD measured in lumbar spine and proximal femur were analyzed. According DXA BMD of femur in patients with diabetes is significantly higher than that of non-diabetics (0,928 [0,847;1,029]; 0,858 [0,779 0,928]; p=0,000005). T-score is also higher in diabetics (-1,47 [-2,12;-0,63]; -2,01 [-2,71;-1,49]; p=0,000020). BMD and T-score of the lumbar vertebrae in diabetic patients was also is significantly higher: BMD (Group I =1,002 [0,902;1,182]; Group II =0,969 [0,879;1,106]; p=0,008). T-score (-0,94 [-1,43; -0,05]; -1,07 [-1,54; -0,40]; p=0,014). After 5 years, spine or long bones fractures marked in 12 patients (18%) from I group. In Group II was observed only 5 episodes of bone fracture (2.6%).
Conclusions: BMD in men with diabetes are higher, but they often develop bone fractures. Perhaps this is due to pathological remodeling of bone tissue on a background of metabolic disorders, when bone is more dense, but fragile.
Disclosure of Interest: None declared
DOI: 10.1136/annrheumdis-2017-eular.1124

AB0824 THE METHOD OF CALCULATING THE PROBABILITY OF OSTEOPENIA IN PATIENTS WITH MULTIFOCAL ATHEROSCLEROSIS

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Objectives: To determine probability of the presence of osteopenic syndrome in patients with multifocal atherosclerosis based on the multislice computed tomography (MSCT) evaluation of vascular calcification.
Methods: 186 male (60±6,7 years) with multifocal atherosclerosis. All the patients underwent the measurement of BMD with X-ray absorptiometry. Moreover, calcium scores (CS) of coronary and brachiocephalic arteries were obtained using Agatston method.
Results: Among the patients had a high prevalence of osteopenia syndrome (87.1%). According to X-ray absorptiometry T-score values of lumbar vertebrae -1.07 [-1.54; -0.40], T-score of the proximal femur -2.01 [-2.71; -1.49]. We also found a large amount of calcification of the coronary arteries according MSCT: calcium score (CS) 471.8 [118.2; 916,8]. Calcification of the carotid arteries in patients of the study group was less pronounced: CS 113.9 [44.5; 300.8], but noted significant direct relationship between the degree of calcification of different vascular beds (r=0,35, p<0,05). We have data on the significant inverse association between bone density and a coronary artery calcification (r=-0,29, p<0,05), and the carotid artery (r=-0,22, p<0,05) by using Spearman rank correlations. Factors that affect the probability of osteopenic syndrome (according X-ray absorptiometry) in patients with known rates of calcification of the coronary and carotid arteries were obtained by regression analysis. These factors were coronary CS (p=0.012), carotid CS (p=0.034), the mass of calcifications of the carotid arteries (p=0.025) and the presence of a stenosis of the carotid arteries (p=0.026). The predictive model for estimating the probability of the presence of osteopenia in patients with multifocal atherosclerosis has been is designed using regression coefficients of each of the factors. As a result, ROC-analysis of the area under the ROC-curve for this prediction model was 0.792 (p=0.0001). The model was tested in the study sample. The specificity of the model was 72.1%, sensitivity of the model was 80.2%.
Conclusions: The study results suggest that indicators of calcification of the carotid and coronary arteries resulting from a routine examination by MSCT of patients with multifocal atherosclerosis have a high predictive capacity for assessing the probability of the presence of osteopenic syndrome in this category of patients.
Disclosure of Interest: None declared
DOI: 10.1136/annrheumdis-2017-eular.1125

AB0825 COMPARISON OF BONE DENSITY CHANGES ONE YEAR AFTER TREATMENT WITH ZOLEDRONIC ACID VERSES DAILY TERIPARATIDE

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Background: The treatment of Osteoporosis is difficult to monitor and so usually incomplete resulting in inadequate response.[1]
Objectives: To evaluate the minimum period of treatment required with Bisphosphonates and Parathyroid hormone in order to see a significant change in serial Bone Mineral Density analysis (BMD).
Methods: Low BMD patients were subjected to yearly infusion of Zoledronic Acid 5mg (ZA) verses daily Subcutaneous injections of Teriparatide 20 μg (PTH). A single center pencil beam bone densitometer was used to measure serial BMD at baseline and yearly. Average BMD measures from the Spine L2, L3 and L4 (BS) and Total Hip (BH) were evaluated. The percentage change in the mean BS and BH readings was calculated to look for the least significant change (LSC) in the density scores.
Results: Significant change of 4.65% was seen (LSC=2.6%)[2] in the Spine in the PTH group after one year of treatment while it took two years in the ZA group for a 2.77% change. There was no significant change (LSC=3.6%)[2] in both groups in the BH. A p>0.05 was considered statistically significant. The finding is summarized in Table 1.

Table 1

Study group of 100 patients					Percentage Change in BMD			
Treatment Group	N	Gender		Age range	BS*		BH**	
		Males	Female	Years	After 1 yr	After 2 yrs	After 1 yr	After 2 yrs
ZA - Zoledronic Acid	50	12	38	42–79	2.19	2.77	0.02	2.47
PTH -Teriparatide	50	10	40	40–75	4.651	X	2.272	X
LSC - Least Significant Change for single DXA machine					2.50%		3.60%	

*Average of L2,3,4 Spine; **Total Hip.

Conclusions: Significant result of treatment with PTH requires a period of one year of therapy while with ZA it needs two years. The LSC in BMD is seen in the Spine and not in the Total Hip BMD.
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Disclosure of Interest: None declared
DOI: 10.1136/annrheumdis-2017-eular.3198

AB0826 RESULTS OF BONE MINERAL DENSITY IN COELIAC DISEASE: ABOUT 30 CASES

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Background: The link between Coeliac disease (CD) and low bone mass has been established in several large international studies.
Objectives: To determinate the prevalence and risk factors of osteopenia and osteoporosis in a Tunisian population of coeliac patients.
Methods: We carried a retrospective study from January 1991 to December 2015 including all cases of CD diagnosed in the departement of Gastroenterology B in Rabta's Hospital. We retained all patients having a bone mineral density (BMD). We used the WHO criteria for the diagnosis of osteoporosis and osteopenia.
Results: During the period of the study, 78 cases of CD were included. Thirty among them, performed a BMD: 25 women and 5 men with an average age of 35.8 years. Malnutrtion was found in 14 patients with a BMI <20Kg /m^2. Smoking was found in one case. Among women, 2 were menopaused. BMD showed a low bone mass in 76,3% of patients: osteoporosis in 43.3% and osteopenia in 33.3%. The mean T score was -2.08 DS in the lumabr spine (LS) and -1DS in the Femur (F). The mean Z score was -1.66DS in LS and -0.73DS in femur. Osteoporosis was found in 13 patients: 3 men and 10 women (2 among them were menopaused). The research of risk factors of osteoporosis found a smoking (N=1), and an associated autoimmune disease in 5cases: A diabetes Mellitus in 3 patients, and an autoimmune hepatitis an Sjogren Syndrome in 1 case. Finally, a marked villous atrophy was associated to osteoporosis in 9 cases.
Conclusions: Our study showed that approximately ¾ of coeliac patients had a low bone mass. Osteoporosis was found in 33% of our patients and was associated to a marked villous atrophy.
Disclosure of Interest: None declared
DOI: 10.1136/annrheumdis-2017-eular.6923