AB0827 COMPARISON OF THE CAPABILITY OF RADIAL BONE MINERAL DENSITY AND CALCANEAL QUANTITATIVE ULTRASOUND VARIABLES IN THE IDENTIFICATION OF MEN WITH OSTEOPOROSIS

A. Oral, D. Sindel, A. Yaliman, S. Asghari Kaleibar, S. Esmaeilzadeh. *Physical Medicine and Rehabilitation, Istanbul University Istanbul Faculty of Medicine, Istanbul, Turkey*

Background: Bone mineral density (BMD) as measured by dual-energy X-ray absorptiometry (DXA) is considered the gold standard for the management of osteoporosis. Recently, quantitative ultrasound (QUS), which is easy to use, inexpensive, portable, does not use ionizing radiation, and has also been shown to provide information about bone quality and to predict fracture risk, has gained growing interest in this area.
Objectives: The aim of this study was to compare the capability of one-third radius (33% radius) DXA BMD measurements and calcaneal QUS (cQUS) variables for identifying axial osteoporosis as measured by DXA in men.
Methods: Axial BMD measurements at the lumbar spine and at the hip (femoral neck and total hip), 1/3 radius BMD of the non-dominant forearm were made using DXA and cQUS variables at both sides as measured twice were obtained in 179 men aged between 24 and 85 years. Osteoporosis was defined based on the WHO criteria in men aged 50 and over, a man having been considered as osteoporotic in the presence of a T-score $\leq$-2.5 in any of the axial regions measured. For defining axial osteoporosis or BMD below the expected range for age, Z-scores of $\leq$-2.0 were used in men younger than the age of 50 years. Receiver operating characteristic (ROC) analysis was used to assess the osteoporosis identification capability of measurements.
Results: The areas under ROC curves (AUCs) for 1/3 radius BMD, its T-score, the lowest means (as calculated as the mean of the two calcaneal QUS measurements for each heel) of quantitative ultrasound index (QUI), QUI T-score, broadband ultrasound attenuation (BUA), speed of sound (SOS), and estimated heel BMD (eBMD) for identifying axial osteoporosis or BMD below the expected range were found as 0.755, 0.767, 0.760, 0.758, 0.717, 0.768, and 0.764 ($p<0.001$ for all), respectively.
Conclusions: In conclusion, AUCs pointed to similar (for QUI, QUI T-score, and eBMD) or even better (for SOS) osteoporosis discriminative capability of cQUS variables in comparison to radial DXA BMD variables. These findings may have implications that cQUS variables, particularly SOS, may be used for the identification of osteoporosis in men whose axial BMD cannot be measured by DXA due to certain circumstances as well as in circumstances where DXA is not available.
References:

[1] Marín F, González-Macías J, Díez-Pérez A, Palma S, Delgado-Rodríguez M. Relationship between bone quantitative ultrasound and fractures: a meta-analysis. J Bone Miner Res 2006;21:1126–35.
[2] Moayyeri A, Adams JE, Adler RA, Krieg MA, Hans D, Compston J, Lewiecki EM. Quantitative ultrasound of the heel and fracture risk assessment: an updated meta-analysis. Osteoporos Int 2012;23:143–53.
[3] Kilappa V, Moilanen P, Xu L, Nicholson PH, Timonen J, Cheng S. Low-frequency axial ultrasound velocity correlates with bone mineral density and cortical thickness in the radius and tibia in pre- and postmenopausal women. Osteoporos Int 2011;22:1103–1113.

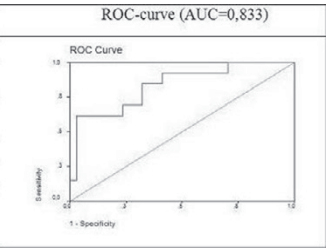
Disclosure of Interest: None declared
DOI: 10.1136/annrheumdis-2017-eular.6686

AB0828 MAJOR RISK FACTORS OF OSTEOPOROSIS IN RA FEMALE PATIENTS WITH NORMAL MENSTRUAL CYCLE

E.A. Taskina, L.I. Alekseeva, I.S. Dydykina, M.M. Podvorotova, A.V. Smirnov, S.I. Glukhova, E.L. Nasonov. *V.A. Nasonova Research Institute of Rheumatology, Moscow, Russia, Moscow, Russian Federation*

Background: Only postmenopausal women were in the researcher's focus in the majority of publications on osteoporosis (OP) risk factors (RF) in RA female patients (pts). Meanwhile the data on OP RF in menstruating women presented in the rare available papers are not consistent.
Objectives: To identify the major OP RF in RA female pts with normal menstrual cycle.
Methods: 51 RA (based on ACR criteria) female pts with normal menstrual cycle aged 20 to 51 years (mean age 41,1±7,9) were examined. The following info was included in each individual pts' files: anthropometric parameters, social and demographic data, case history, clinical examination and lab findings, traditional OP RF, pts' joint status, comorbidities status, pain intensity assessments and VAS evaluation of pts' general health status. Axial bone mineral density (BMD) was measured with DEXA scan using Z-score calculator. Based on the OP status all pts were divided into 2 groups:pts with OP–16 (31,4%), and pts without OP–35 (68,6%).
Results: Comparative analyses of the groups showed that: OP pts were younger vs the pts without OP (36,9±10 vs 42,8±6,3 years, p=0,02). Disease duration was comparable in both groups. Clinical manifestations of inflammation activity (mean DAS 28 score and hsCRP) were statistically significantly more pronounced in the OP group vs the pts without OP (4,91±1,39 vs 4,19±1,06, p=0,049; 27,8 (10,8–43,5) vs 7,4 (1,4–22,7) mg/L, p=0,02, respectively). High DAS 28 (50 vs 20,6%, RR=2,43, 95% CI 1,07–5,53, p=0,03) scores were more often documented in the OP pts. Pronounced feet and hand bone destruction based on the radiographic findings was documented in the majority of pts in both groups, although in the OP pts the joint space narrowing counts (97 (62,5–121) vs 73,5 (53–87), p=0,02) and the total Sharp score (98 (64,5–183) vs 89,0 (63–112), p=0,03) were statistically significantly higher. The OP pts were more often administered oral GCs (81,3 vs 37,1%, RR=2,19, 95% CI 1,34–3,57, p=0,004), as well as GCs -pulse therapy (56,3 vs 25,7%, RR=2,18, 95% CI 1,08–4,45, p=0,04), had higher GCs cumulative dose (18,8 (8,1–30,7) vs 6,4 (0,8–14,1)g, $p<0,01$), higher GC daily dose at the time of examination (8,8 (6,3–10) vs 5 (3,8–6,3)mg/day, p=0,01) and higher average daily dose in the previous year (8,8 (5–10) vs 3,8 (2,5–6,3)mg/day, p=0,01) versus the pts without OP. Analysis of traditional RF (low body weight/BMI, long immobilization periods, smoking, family history of OP and others) showed no difference between the two groups. Discriminant analysis revealed the following major OP RF in the RA female pts before menopause: RA activity (based on the Das 28 score) and GCs dose at the time of examination (given GCs therapy lasts $\geq$3 months). Meanwhile the patient's body weight and age at the onset of RA were identified as protective factors for BMD. Based on the abovementioned risk and protective factors and the derived coefficients the authors designed a formula allowing to predict of OP in female RA pts before menopause with high accuracy (area under the ROC-curve=0,833). The model accuracy is 85,1%.

Factors	Discriminant function coefficients
RA activity (DAS 28)	0,667
GCs dose at the time of examination	0,257
Age at RA onset	-0,09
Body weight	-0,034
Constant	1,319



Conclusions: RA activity and GCs dose (GCs therapy duration $\geq$3 months) were identified as the major OP RF in young RA female pts before menopause, thus adequate and timely therapy aimed at obtaining RA control and achieving remission should be considered as key OP prevention strategy.
Disclosure of Interest: None declared
DOI: 10.1136/annrheumdis-2017-eular.2312

AB0829 BONE METABOLISM IN LIVER TRANSPLANT PATIENTS TWO-YEAR STUDY. INFLUENCE OF MEDICAL INTERVENTION PRIOR TO SURGERY AND ANTIRESORPTIVE TREATMENT

E. Labrador Sánchez [1], E. Grau Garcia [1], K. Arévalo Ruales [1], J.J. Fragio Gil [1], R. González Mazarío [1], C. Alcañiz Escandell [1], I. Cánovas Olmos [1], I. Chalmeta Verdejo [1], C.M. Feced Olmos [1], L. Gonzalez Puig [1], J. Ivorra Cortes [1], I. Martínez Cordellat [1], C. Nájera Herranz [1], R. Negueroles Albuixech [1], J.E. Oller Rodriguez [1], F.M. Ortiz-Sanjuan [1], E. Vicens Bernabeu [1], A. Villota Bello [2], V. Fornés Ferrer [3], D. Hervás Marín [3], D. Moya Nájera [4], A. Moya Herraiz [5], J.A. Román Ivorra [1,2]. *[1]Rheumatology Department, HUP la Fe; [2]Medical School, UCV; [3]Biostatistic Unit, IIS la Fe; [4]Health and Sport Group, UV; [5]Hepatology Department, HUP la Fe, Valencia, Spain*

Background: Osteoporosis is a frequent complication in patients with chronic liver diseases, mainly in advanced stages or with evidence of cholestasis. During the first few months after liver transplant (LT) it seems that there is an accelerated bone mass loss and greater fracture risk.
Objectives: To study the antiresorptive treatment effect in bone metabolism in patients undergoing LT and to evaluate whether medical intervention prior to LT decreases the risk of osteoporosis
Methods: We recruited patients from the LT Protocol of Osteoporotic Risk Assessment. The patients were evaluated 3–6 months before surgery, shortly after transplant (month 0) and 6–12–18–24 months after surgery. Data of bone metabolism biomarkers, densitometric values and antiresorptive treatment was collected. Biostatistical analysis with R (3.3.2.) was performed.
Results: We selected 163 LT patients of which 86 completed 24 months follow-up. From the total cohort, 77.8% were men and the mean age at transplantation 54.53±9.4 years old. 92.6% of patients were supplemented with vitamin D after surgery and 19.6% initiated antiresorptive treatment. We observed that 25-OHVitamin D, PTH, beta-CTX and P1NP levels were corrected through the follow-up. T-score during the first year of follow-up decreased slightly and at 24 months the tendency was towards increase. This pattern was stronger in lumbar spine (t-score -1.48±1.34 after surgery and -1.28±1.06 at 24 months). Statistical analysis showed that antiresorptive treatment significantly influence lumbar and hip densitometric values ($P<0.001$ and $P<0.001$ respectively) as well as P1NP levels (P=0.003 and P=0.012 respectively). Moreover, obesity (P=0.0004), as well as beta-CTX (P=0.029) and 25-OHVitamin D (P=0.024) standardization improved hip densitometric values. Finally, LT patients evaluated before surgery showed better lumbar densitometric values than those evaluated after the transplant (P=0.007).

Conclusions: We observed 25-OHVitamin D levels and bone metabolism biomarkers correction during the first two years after LT. Medical intervention prior to LT as well as antiresorptive treatment seem to play a decisive role in bone mineral density improvement.
Disclosure of Interest: None declared
DOI: 10.1136/annrheumdis-2017-eular.5855

AB0830 BONE MINERAL DENSITY IN MULTIPLE MYELOMA: 39 CASES

Z. Saoussen, H. Mouanaa, A. Arfa, M. Jguirim, B. Ismaiel, M. Touzi, N. Bergaoui.
Rheumatology departement of Monastir University Hospital, Monastir, Tunisia

Background: In multiple myeloma (MM), osteolysis affects more than 80% of patients. This leads to bone pain, pathological fractures and hypercalcemia. These lesions result from an alteration of bone remodeling by increased osteoclast activity and decreased osteoblasts one. The real impact of this osteolysis on bone mineral density remains largely understudied. To the best of our knowledge the impact of MM on bone mineralization was studied worldwide only for 6 times where our study is the second biggest one.
Objectives: The aim of the study was to evaluate bone mineralization in the patients with multiple myeloma according to the criteria of diagnostic (IMWG: International Myeloma Working Group 2014, during a period of 5 years (2011–2016).
Methods: This is a transverse and descriptive study. The bone mineral density was measured by dual-energy X-ray absorptiometry with Lunar Prodigy in spine (L2-L4) and femoral neck.
Results: Thirty-nine patients were collected. The average age was 63±10 years [50 years, 86 years] upon them 26 men and 13 women. The sex-ratio is equal to 2. 11 patients were smoking (35%), 9 of them had diabetes and only 2 were alcoholic (6%). The Body Mass Index (BMI) average was 29 kg/m^2. Only one case was underweight (3%). The reason of seeking health carewas poor general state in 14 cases (49%), bone pain in 22 cases (78%),5 cases among them of generalized bone pain (23%) and 12 cases of rachialgia (4.5%) and only 4 cases of pathological fracture (15%). The distribution of patients according to the Durie and Salmon Classification was as follows: 25 cases (84%) in stage III, 3 cases (10%) in stage II, 2 cases (7%) in stage I, and 27 cases (90%) Type A and 3 cases (10%) type B. The average of the monoclonal spike was 34g/L [2.5g/L, 88g/L] The heavy chains antibodies were IgG type in 19 cases (64%), IgA type in 7 cases (24%), IgM type in only one case (4%) and IgD type in only one case (4%). The light chains were Kappa type in 19 cases (64%) and Lambda type in 11 cases (37%). The ISS score was equal to 1 in 6 cases (23%), equal to 2 in 13 cases (34%) and equal to 3 in 8 cases (30%).The average bone mass in the spine was 0.998±0.254g/cm^2 [0.632g/cm^2; 1.892g/cm^2] and in the femoral neck 0.869±0.254g/cm^2 [0.632g/cm^2; 1.892g/cm^2]. The average of the Z-score in the spine was -0.762±1.895 [-4.4; 5.7] and in the femur -0.438±0.962 [-2.8; 1.4]. The mean T-score in the spine was -1.626±2.025 [-4.9; 5.6] and in the level of the femur -1.567±1.178 [-3.7; 1]. There was a decrease of bone mineral density noticed in 15 patients (39%) in at least one place (T-score more than 2.5 SD below normal of young healthy persons. Seventeen patients (58%) were candidates for *autogenous bone graft*. They had *induction chemotherapy* (Dexamethasone-thalidomide). Others was treated by MPT protocol (Prednisone-Thalidomide-Dexamethasone) in 8 cases (28%), CDT protocol (Cyclophosphamide-Thalidomide-Dexamethasone) in one case (4%) and MP protocol (Melphalan -Prednisone) for the remaining (10%).
Conclusions: BMD analysis suggests that MM is associated with systemic bone disease with progressive loss of bone mass at both the spinal and lumbar levels. In order to better study the impact of multiple myeloma and chemotherapy on bone densitometry, a densitometry controlin about 5 years is favorable.
Disclosure of Interest: None declared
DOI: 10.1136/annrheumdis-2017-eular.6754

AB0831 FRAX SCORE: AN INTERESTING WAY FOR GASTROENTEROLOGISTS TO ASSESS FRACTURE RISK IN PATIENTS WITH LONG-TERM PROTON PUMP INHIBITORS

H. Romdhane[1], M. Cheikh[1], K. Abdelghani[2], R. Ennaifer[1], N. Bel Hadj[1], A. Laatar[2]. *[1]Gastroenterology and hepatology; [2]Rhumatology, Mongi Slim Hospital, TUNIS, Tunisia*

Background: Proton pump inhibitors (PPI) are effective in many indications. Nevertheless, some serious adverse effects associated with prolonged exposure, including an increase in fracture risk, have occurred. This would be explained by two main mechanisms: decreased absorption of calcium secondary to decreased gastric acidity and inhibition of proton pump of osteoclasts reducing bone resorption.
The Frax score assess the 10-year probability of osteoporotic fracture or hip fracture in subjects older than 40 years.
Objectives: The aim of our study was to evaluate the usefulness in our practice of this score in patients under long-term PPI.
Methods: We included patients who had been taking PPI for at least one year. In all patients, we specified the indication and duration of PPI. We then looked for the main personal or family risk factors for osteoporosis. Bone mineral density (BMD) was performed in all patients and frax score was calculated for those older than 40 years.
Results: Fifty-two patients were included in our study. The mean age was 49.5±14.55 years [21 - 84 years] with a sex ratio of 0.48. Long-term PPI were indicated in 75% (n=39) of patients for gastroesophageal reflux, in 11.5% (n=6) for chronic gastritis with failure of Helicobacter Pylori eradication, in 3.8% (n=2) for persistent epigastralgia, in 5.7% (n=3) for functional dyspepsia and finally in 3.8% (n=2) of patients in prophylaxis of gastroduodenal lesions in chronic use of NSAIDs. The mean duration of intake was 45.4 months [12–240 months]. The main osteoporotic risk factors were tobacco in 25%, alcohol in 12%, physical inactivity in 42% and dysthyroidism in 6% of cases. In our study, 20 women among the 35 included (57% of cases) were already menopausal. An osteoporotic fracture in a first-degree relative was noted in 23% of cases, including one parent reporting two fractures. A history of fragility fracture was observed in 11 patients (21%) including 3 men and 8 women. The mean daily calcium intake was 567.2±327.6 mg /d [230 -2315 mg /d]. Calcium intake was insufficient in 94% of patients. BMD was normal in 15 patients (29% of cases) while 71% (n=37) had low BMD. In our population, age (p=0.02), calcium intake (p=0.029) and menopause ($p<0.0001$) were significantly related to low BMD. The duration of PPI intake was negatively correlated with BMD. Patients taking PPI for at least 30 months were 6.5 times more likely to have low BMD (95% CI [1.5–27.4]). The mean FRAX score for major osteoporotic fractures in 37 patients older than 40 years was 1.08±0.84% [0.3–3.3%]. For hip fractures, the mean score was 0.26±0.29% [0–1.4%]. There was a significant correlation between mean Frax score and BMD ($p<0.0001$). None patient had a patent or subclinical fracture during the follow-up period.
Conclusions: Our study shows an increased risk of fracture in patients under long-term PPI, especially if they have other osteoporotic risk factors. In this context, Frax score is a simple and non-invasive tool for assessing fracture risk in these patients and to adapt screening strategy for sub-clinical fractures.
References:
[1] none.
Acknowledgements: none.
Disclosure of Interest: None declared
DOI: 10.1136/annrheumdis-2017-eular.5399

AB0832 EFFECT OF LONG-TERM PROTON PUMP INHIBITORS ON BONE MINERAL DENSITY

H. Romdhane, M. Cheikh, H. Ben Nejma, R. Ennaifer, N. Bel Hadj.
Gastroenterology and hepatology, Mongi Slim Hospital, TUNIS, Tunisia

Background: Proton pump inhibitors (PPI) are widespread nowadays. Recent concerns have emerged about possible bone complications of long-term use of PPIs, such as low bone mineral density (BMD) and an increased risk of fractures.
Objectives: The aim of our study was to evaluate the effect of long-term use of PPIs on bone by measuring the BMD in order to estimate the frequency of osteopenia and osteoporosis, and to determine the risk factors associated to this complication.
Methods: It was a prospective study including consecutive patients who where taking proton pump inhibitors for at least one year. In all patients we realized a bone densitometry in order to evaluate the bone strength and we calculated the FRAX score to estimate the risk of osteoporotic fracture at ten years.
Results: We included 52 patients. The mean age was 49,5 years old. The male-female ratio M/F was 0,48. At least three risk factors were found in more than 50% of the population. The calculated daily calcium intake was insufficient in 94% of the patients. The mean duration of PPIs intake was 45 months. The most frequent indication was gastro esophageal reflux disease (75%). The PPI prescription was appropriate in 94% of the cases. The prevalence of osteopenia and osteoporosis was respectively 52% and 19%. The predictive factors of low BMD were an age $\geq$50 years old (p=0,03), the menopause ($p<0,0001$), a calcium intake $\leq$550 mg/day ($p<0,038$), and a PPI use duration $\geq$30 months ($p<0,006$). The multivariate study could not be undertaken because of co linearity of the factors.
Conclusions: The long term PPI use is associated to the risk of bone complications, especially among patients at risk for osteoporosis. It seems reasonable to be more vigilant in prescribing PPIs and use lowest effective dose for patients with appropriate indications, and to screen these complications if necessary.
Disclosure of Interest: None declared
DOI: 10.1136/annrheumdis-2017-eular.5281

AB0833 BONE MINERAL DENSITY IN TUNISIAN PATIENTS WITH AUTOIMMUNE HEPATITIS

M. Cheikh, H. Romdhane, H. Bennejma, R. Ennaifer, N. Bel Hadj.
Gastroenterology and hepatology, Mongi Slim Hospital, TUNIS, Tunisia

Background: Bone loss in autoimmune hepatitis (AIH) is scanty and conflicting. The pathogenic mechanisms are not completely elucidated.
Objectives: This study aimed to assess the prevalence and risk factors for bone loss in patients with AIH.
Methods: Bone mineral density (BMD) using X-ray absorptiometry at both lumbar spine and femoral neck sites was measured in patients with AIH. Were excluded patients with diseases disturbing the bone density. Osteopenia was considered if T-score <-1.5 DS and osteoporosis if T-score <-2.5 DS.