associated with osteoporosis. Adiponectin levels of 43.9 μg/ml and lower were associated with normal bone density.
Conclusions: Thus, we revealed that Adiponectin levels depend on osteoporosis presence in RA patients. We suppose that Adiponectin determination may be useful laboratory marker for OP diagnosis.
References:
[1] Eliseev M.S. Revmatoidnyj artrit na Kongresse EULAR-2014 v Parizhe: novye zadachi, novye perspektivy. Revmatologija 2014;5(16):2–5.
[2] Polyakova Yu.V., Zavodovsky BV, Sivordova LE, Hakhverdyan Yu.R. Adipokiny with rheumatoid arthritis. International Scientific and Research Journal 2014;12(4):77–78.
Disclosure of Interest: None declared
DOI: 10.1136/annrheumdis-2017-eular.2360

FRI0555 LEFT VENTRICULAR EJECTION FRACTION AND BONE MINERAL DENSITY AFTER CARDIAC TRANSPLANTATION

L. Bautista Aguilar, A. Salmoral Chamizo, I. Gomez Gracia, R. Jimenez Gasco, P. Font Ugalde, E.C. Lopez Medina, M.L. Ladehesa Pineda, L. Perez Sanchez, A. Escudero Contreras, E. Collantes Estevez. *Rheumatology, Reina Sofia University Hospital/IMIBIC/ University of Cordoba, Cordoba, Spain*

Background: Left ventricular ejectionfraction (LVEF) has beendirectlyassociatedwith BMD in patientswithheartfailure. Nevertheless, no study has linked yet the left ventricular ejection fraction to bone mineral density and fragility fractures in cardiac transplantation.
Objectives: The main aim of this study was to evaluate the possible relationship between LVEF and BMD in heart transplantation and the association of LVEF with 25 OH vitamin D, paratohormone (PTH) and markers of bone remodeling in patients with heart transplantation (osteocalcin, telopeptide C terminal (CTX).
Methods: Seventy nine patients (66 male) were included in this cross-sectional study with a mean age of 55,75±14,81 years, body mass index (BMI) values of 26,95±5,35 kg/m^2 and an average post-transplantation period of 8,46±8,71 years. Transthoracic doppler echocardiography measuring LVEF (%) was calculated for each of patients, as well as bone mass study that included: bone mineral density scans of lumbar spine and hip, spine radiography, biomarkers of bone metabolism (calcium, phosphorus, osteocalcin,CTX,Parathyroid hormone and vitamin D). The association of LVEF with BMD and biomarkers of bone remodeling was determined by performing multiple linear regression analysis adjusted for variables directly related to BMD (age, sex, BMI, post-transplantation period and pharmacological treatment (daily corticoids dose, immunosuppressive treatment).
Results: A total of 79 patients were included in this present study. BMD in osteoporotic range was found in 31.2% of patients (17.7% in spine,16.52% in femoral neck and 13% in hip). Vitamin D deficiency ($\leq$20ng/d) was detected in 68.4% of patients. Vertebral fracture was found in 30.4% and a 2.6% hip fracture. Bivariate analysis showed that the group of patients with FEVI $\leq$65% had a higher proportion of femoral neck osteoporosis (p=0.04), higher proportion of osteoporosis in total hip (p=0.03) and higher percentage of vertebral fractures (p=0.04) compared with group with LVEF$>$65%.
The multiple linear regression analysis indicated that LVEF was independently associated with osteoporosis in spine (B = -5.225, p=0.011), femoral neck osteoporosis (B = -5.411, p=0.015) and vertebral fractures (B = -5.433, p=0.002). In addition, LVEF was associated with osteocalcin levels (B = -0.105, p=0.002).
Conclusions: These results suggest that post-transplantation LVEF may have an influence on bone remodeling. However, further studies are neededin order to consider LVEF as a risk factor for osteoporosis and fractures due to fragility after heart transplantation.
Disclosure of Interest: None declared
DOI: 10.1136/annrheumdis-2017-eular.4434

FRI0556 LONG-TERM EFFECTS OF BACK EXTENSOR STRENGTHENING EXERCISES ON QUALITY OF LIFE IN WOMEN WITH OSTEOPOROSIS

S.A. Raeissadat[1], A. Khalili[2], L. Sedighipour[3], M. Heidari Almasi[4]. *[1]Physical Medicine & Rehabilitation Research Center, Modarres hospital; [2]Department of Orthopedic Surgery, Department of Orthopedic Surgery; [3]Physical Medicine & Rehabilitation Research Center, Physical Medicine & Rehabilitation Research Center; [4]Boo-Ali hospital, Tehran, Iran, Islamic Republic Of*

Background: A correlation exists between bone mineral density and physical activity level, suggesting that exercise may increase peak bone mass. Back extensor strength has been of major importance and had a strong effect on quality of life in this population.
Objectives: The aim of the present study was to evaluate the long-term effect of back extensor strengthening exercises on health-related quality of life (QOL) in women with osteoporosis.
Methods: In this randomized clinical trial, 183 women with osteoporosis were treated with pharmacotherapy and weight-bearing and balance-training exercises. The case group additionally performed back extensor exercises at home. Patients filled out the Persian version of the Short Form (SF-36) QOL questionnaire at baseline and 6 months post treatment.
Results: At the end, all physical and mental parameters of the SF-36 questionnaire improved significantly in the case group, except for one subscale of mental health, compared to the control group. In the control group, only some physical health dimensions (bodily pain, role limitation, physical function, vitality), and mental health status as a mental health subscale improved.
Conclusions: considering a major impact of back extensor exercises on improving QOL in women with osteoporosis over the long term, these exercises should be prescribed in routine management of these patients.
Disclosure of Interest: None declared
DOI: 10.1136/annrheumdis-2017-eular.1754

FRI0557 DOES WEIGHTED KYPHO-ORTHOSIS (WKO) REDUCE RISK OF FALL IN WOMEN WITH OSTEOPOROSIS? A PRELIMINARY STUDY

S.A. Raeissadat[1], S.M. Rayegani[2], L. Sedighipour[1], M. Hashemi[2], M.H. Bahrami[2]. *[1]Physical Medicine & Rehabilitation Research Center; [2]Physical Medicine and Rehabilitation research center, Tehran, Iran, Islamic Republic Of*

Background: It was suggested that posture training support with spinal orthosis including weighted kyphorthosis can improve balance in patients with osteoporosis.
Objectives: The aim of the present study was to determine the effects of weighted kyphorthosis on improving dynamic balance tests and consequently reducing risk of fall in women with osteoporosis.
Methods: In this Randomized controlled clinical trial, twenty three patients with osteoporosis were included. The patients were assigned into two groups: 1) control group who received 4-week home-based daily exercise program and 2) intervention group (weighted kyphorthosis) who performed exercises and wore weighted kyphorthosis for one hour twice a day. Patients were assessed using computerized balance tests by Balance Master (NeuroCom) (Limits of Stability, Step Quick Turn, Sit to Stand and Walk across tests) before and 4 weeks after start of treatment.
Results: Speed in walk across test was improved significantly in both groups compared to baseline from (77.6±25 cm/s to 91.57±30 cm/s and from 72.60±20cm/s to 88.73±18 cm/s)in case and control groups respectively. Improvement in right turn time in step quick turn, end point excursion and mean of excursion parameters of Limits of Stability was more significant in orthosis group in comparison with control group ($P<0.05$).
Conclusions: Applying WKO together with exercise program improved some computerized balance tests in women with osteoporosis.WKO can be suggested as an effective intervention in postmenopausal women in order to reduce the risk of falling.
Key words: Osteoporosis, balance tests, Weighted KyphOrthoris, posture training support.
Disclosure of Interest: None declared
DOI: 10.1136/annrheumdis-2017-eular.1780

FRI0558 PREDICTORS OF MORTALITY AND RE-FRACTURE AT 1 AND 3YEARS AFTER HIP FRACTURE

L. Brites, M. Marques, A. Daniel, M. Santiago, A. Marques, J. Pereira da Silva. *Rheumatology department, Centro Hospitalar e Universitário de Coimbra, Coimbra, Portugal*

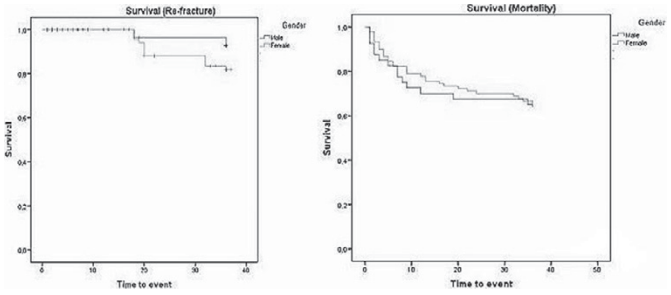
Background: Osteoporosis is a major health problem, particularly in the elderly, because of fragility fractures and their consequences. Hip fractures (HF) are the most ominous in terms of morbi-mortality.
Objectives: The aim of our work was to establish the current mortality and re-fracture rate at 1 and 3 years after HF, as well as their predictors.
Methods: The study included all patients aged $>$40 years, admitted to Coimbra University Hospital between May and October 2013 with the diagnosis of HF. Demographic and clinical data related to the fracture episode was collected from medical files. Patients or the caregiver were contacted to assess potential risk factors at baseline and major post-fracture events at 1 and 3 years after the index HF. The mortality and re-fracture rate 1 and 3 years after fracture were calculated. Possible predictor variables were tested by cox regression analysis: age, gender,

Table 1. Mortality and refracture predictors

	Mortality		Re-fracture	
	p-value	Exp (b)	p-value	Exp (b)
Gender	0,106	2,052	0,265	3,089
Age	0,002	1,075	0,276	0,953
Katz index	0,116	1,154	0,752	0,918
Physiotherapy	0,020	2,167	0,499	0,638
BMI	0,812	0,991	0,142	0,891
Parent hip fracture	0,015	0,355	0,196	0,322
Current smoking	0,453	0,615	0,394	0,417
Corticotherapy	0,013	0,404	0,639	0,637
Rheumatoid arthritis	0,071	2,848	0,798	1,410
Secondary osteoporosis	0,172	0,566	0,154	0,321
Alcohol intake	0,037	0,370	0,980	348544,658
Charlson index	0,000	1,384	0,835	0,941
Number of re-fractures	0,660	0,781		
Anti-osteoporotic treatment			0,430	0,474

physiotherapy, number of re-fractures, BMI, parent hip fracture, current smoking, corticotherapy, rheumatoid arthritis, secondary osteoporosis, alcohol, history of falls, anti-osteoporotic treatment, Katz index of independence in activities of daily living and Charlson comorbidity index. All FRAX® variables were defined as established in this algorithm.

Results: A total of 130 patients satisfied the inclusion criteria, with a mean age of 82±8,7 years, 69% being female). Mortality rates were of 30% and 41% at 1 and 3 years after HF respectively (Fig.1). Age, physiotherapy, parent fractured hip, corticotherapy, alcohol consumption (>3/day) and Charlson índex were statistically significant predictors of mortality at 3 years in multivariable analysis (Tab.1). Re-fracture rates at 1 and 3 years after the index fracture was 3,8% and 11% respectively (Fig.1). We were unable to identify any statistically significant predictors of re-fracture.



Conclusions: We concluded that HF have a great impact on the older population, leading to high morbidity and mortality. In our study, age, physiotherapy, parent hip fracture, corticotherapy, alcohol consumption and Charlson índex are related with increasing mortality in patients who suffered a fagility HF.

Disclosure of Interest: None declared

DOI: 10.1136/annrheumdis-2017-eular.4473

FRI0559 CORRELATION OF THE FRACTURE RISK ASSESSMENT TOOL (FRAX) AND ASYMPTOMATIC MORPHOMETRIC VERTEBRAL DEFORMITIES IN HIV-INFECTED PATIENTS

M. Llop Vilatella[1], C. Medina Quiñones[1], C. Macía Villa[1], W.A. Sifuentes Giraldo[1], M. Vázquez Díaz[1], J.L. Casado Osorio[2]. *[1]Rheumatology; [2]Infectious diseases, Hospital Universitario Ramón y Cajal, Madrid, Spain*

Background: Patients infected with the human immunodeficiency virus (HIV) have a high rate of low bone mineral density (BMD) and is thought to be multifactorial. Some instruments have been developed to estimate the risk of osteoporotic fracture in the general population such as the WHO Fracture Risk Assessment Tool (FRAX), which allows calculating the 10-year probability of fractures in men and women from clinical risk factors with or without the measurement of femoral neck BMD. The cut-off values for high risk of hip fracture >3% and for major osteoporotic fracture >20%. Although FRAX has been validated in multiple large cohorts, still there are no clear recommendations of its use in HIV-infected patients older than 50 years.

Objectives: To evaluate the utility of FRAX tool in the prediction of risk of vertebral morphometric deformity (MVD) in HIV-infected patients over 50 years old seen in a Spanish tertiary care center.

Methods: We performed a cross-sectional study in HIV-infected patients with age 50 years treated in our centre during the period 2014–2016. Demographics and risk factors were collected through a specific survey. FRAX was calculated adding HIV as a cause of secondary osteoporosis in all patients with and without BMD measured by dual-energy X-ray absorptiometry scan (DXA). The MVD were assessed using the Genant's semiquantitative method. The sensitivity and specificity of the test were assessed and correlations made with the presence of MVD.

Results: A total of 121 patients were included, 34 women (28%), with a mean age of 54.1 years (range: 50–75). MVD was detected in 25 cases (21%). The patients presented with a mean BMI of 23.7 kg/m^2, 33% were smokers, 7% had a consumption of ≥3 doses of alcohol per day, 9% had a family history of hip fracture but no patient presented with previous history of fracture, corticoid treatment or rheumatoid arthritis. The mean FRAX score for major osteoporotic fracture without BMD was of 2.29 (1.1–8.5), there were 2 patients above 7 and any above 10; the mean FRAX score for hip fracture without BMD was of 0.64 (0.1–3.9), 2 patients were above 3. With DXA, osteoporosis in femoral neck was detected in 8% and in the lumbar spine in 30%, while femoral neck osteopenia was detected in 64% and in the lumbar spine in 45%. Including DXA data, the mean FRAX score for major osteoporotic fracture was 2.52 (0.2–8.2), 2 patients were above 7, and for hip fracture the mean FRAX score was 0.67 (0.01–4.4), with 2 patients above 3. The values of FRAX with DXA or without DXA were very similar, with a variation of -0.4 for the mean value of major osteoporotic fracture and +0.03 for the mean value of hip fracture. In ROC curve, a value above 1 in FRAX for hip fracture with DXA, detected 9 MVD of 29 patients (sensitivity 38%, specificity 80%), a value above 2 detected 4 MVD of 10 patients (sensitivity 17%, specificity 93%) and a value of 3 detected 1 MVD of 2 patients (sensitivity 4%, specificity 99%).

Conclusions: The FRAX tool does not identify properly the HIV-infected patients older than 50 years with MVD as well as the patients who need DXA. An alternative could be to perform X-rays of thoracic and lumbar spine as a screening method in HIV-infected patients with risk factors.

Disclosure of Interest: None declared

DOI: 10.1136/annrheumdis-2017-eular.5205

FRI0560 PREDICTORS OF FRACTURES IN FEMALE PATIENTS WITH ANOREXIA

M. Rahm, M. Bukhari. *Rheumatology, Royal Lancaster Hospital, Lancaster, United Kingdom*

Background: Anorexia Nervosa (AN) is an eating disorder characterised by extremely low body weight and body image distortion. It is more common in females and is expected to become increasingly more prevalent. Numerous studies have found AN to have a detrimental effect on bone health. The evidence shows that anorexia is associated with reduced bone mass and strength which increases fracture risk. Few staudes have looked at other predictors of fracture in these patients.

Objectives: The aim of this study was to determine whether further predictors of fracture could be found in female patients suffering from anorexia nervosa (AN).

Methods: Female patients with anorexia refereed for a bone mineral density (BMD) DEXA scan from June 2006 to October 2014 were identified. This cohort of patients was split into two subgroups depending on their fracture status. Demographics collected on scanning and factors such as age at DEXA scan, height, weight, body fat percentage, BMI, lumbar spine L1-L4 BMD and femoral neck BMD were used to compare the fracture group against the controls. Categorical variables such as smoking, comorbidities (Rheumatoid arthritis), alcohol, family history and steroid use were compared using chi squared test and the T test was used tompare continous variables. Logistic regression models were used to model fractures unadjusted and adjusting for age at scan.

Results: A total of 193 female patients with anorexia were included: 45 (23.3%) had sustained a fracture. The results of statistical analysis are shown in Table 1. The data showed there is a significant association with having a low femoral neck BMD and increased fracture risk OR 0.036 (95%, CI 0.003, 0.497). The case group was also significantly taller OR 1.061 (95%, CI 1.009, 1.117) and older P value 0.0027 (95% combined CI 39.193, 42.682). There was no correlation with any of the categorical variables and fracture risk, see Table 2 for results.

Table 1. Results of statistical analysis of continuous variables

Characteristic	Significance (P value)	Cases with fractures	Control group
Age at scan (years)	0.0027	45.71 ±SD10.36	39.49 ± SD12.46
Height (cm)	0.021	165.08 ± SD7.45	162.66 ± SD6.82
Weight (kg)	0.129	58.16 ± SD13.68	53.73 ± SD11.83
Body Fat (%)	0.536	16.36 ± SD11.75	13.62 ± SD10.28
BMI	0.601	21.24 ± SD4.31	20.31 ± SD4.43
Lumbar spine (L1-L4) (g/cm^2)	0.053	0.98 ± SD0.18	1.03 ± SD0.14
Femoral neck BMD (g/cm^2)	0.013	0.81±SD0.15	0.86±SD0.14

Table 2. Results of statistical analysis of categorical variables

Characteristic	Cases with fracture (45)	Control group (148)	Significance (P value)
Smoker	28.9% (13)	34.46% (51)	0.445
RA	2.22% (1)	0.68% (1)	0.349
Alcohol	8.89% (4)	8.78% (13)	0.524
Family history	31.11% (14)	22.97% (34)	0.403
Steroid	15.56% (7)	8.78% (13)	0.197

Conclusions: This study demonstrates that fractures in female patients with anorexia are more likely to occur in those who are taller, older at DEXA scan and in those who have a lower femoral neck BMD. This would inidcate that cortiocal bone loss and taller stature are indepent risks in this cohort. Further work using vitamin D levels as a risk should be performed.

Disclosure of Interest: None declared

DOI: 10.1136/annrheumdis-2017-eular.3778

FRI0561 SAFETY OF DENOSUMAB IN POST-MENOPAUSAL OSTEOPOROSIS AND IN CANCER: A SYSTEMATIC REVIEW AND META-ANALYSIS

M. Aubailly[1], T. Barnetche[2], B. Combe[1], C. Gaujoux-viala[3], C. Lukas[1], J. Morel[1], H. Che[1]. *[1]CHU lapeyronie, Montpellier; [2]CHU bordeaux, Bordeaux; [3]CHU Nîmes, Nîmes, France*

Background: Denosumab is a RANK ligand antibody (1) used for the treatment of post-menopausal osteoporosis (OP) and prevention of bone metastases complications (2,3).

Objectives: The aim of this meta-analysis was to assess the safety of Denosumab.

Methods: Data sources included MEDLINE, EMBASE, Cochrane Library, and recent abstracts from ACR and EULAR congresses were searched until March 2016. Randomized controlled trials comparing the safety of Denosumab to placebo or bisphosphonates (BP) in postmenopausal OP and in cancer (either cancer with bone metastases or with hormone therapy) were selected. Data were