virus infection was present in 29%. 25% were treated with tenofovir plus protease inhibitors, and 47% with tenofovir plus a non-nucleoside reverse transcriptase inhibitor. The mean value of BMD in lumbar spine (LS) was 0.93 g/cm^2 (range: 0.84–1.02) and in femoral neck (FN) 0.78 g/cm^2 (range: 0.69–0.86). For the comparison with the ESOSVAL cohort the worst value of T-score in either LS or FN was chosen and patients were classified according to WHO definitions (osteoporosis ≤ -2.5, osteopenia -1 to -2.5); the results are presented in the table. Only the data for the 50–64 and 65–74 years groups were compared because the number of older HIV patients in our center was small. Significant differences were found between the categories of osteoporosis in men in the 65–74 years old group, and that of osteopenia in women in the 55–64 years old group.

	55–64y		*p*-value	65–74y		*p*-value
	HIV+ n=60	ESOSVAL n=2893		HIV+ n=16	ESOSVAL n=1555	
Males						
T-score ≤ -2,5	20%	12.6%	0.08798	44%	11.2%	0.00005*
T-score -1 to -2,5	61%	48.9%	0.02888*	63%	59.2%	0.79102
Females						
T-score ≤ -2,5	31%	21%	0.38845	50%	29,8%	0.37768
T-score -1 to -2,5	82%	50.1%	0.01296*	50%	49,7%	0.99107

Conclusions: We observed a statistically significant increase in prevalence of osteoporosis in HIV-infected men in the 65–74 years group, and in osteopenia HIV-infected men in the 55–64 years group, in concordance with the presumed greater risk derived from a variety of causes (treatment, chronic inflammatory status, comorbidities, etc.). A non significant trend towards an increased prevalence of osteoporosis in the 55–64 years group, and in osteopenia in the 65–74 years group was seen. As for women, there was a statistically significant increase in osteopenia prevalence in the 55–64 years group with HIV and a non significant trend towards increased prevalence of osteoporosis in that age group, whereas no significant increase was observed in the 65–74 years HIV group, presumably due to the small number of patients included in it.
Disclosure of Interest: None declared
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FRI0546 COMPARISON OF MINERAL BONE DENSITY AND RISK FRACTURE ASSESSED BY THE FRAX TOOL IN HIV-INFECTED PATIENTS FOLLOWED IN A SPANISH TERTIARY HOSPITAL WITH THOSE OF NON HIV-INFECTED SPANISH POPULATION

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Background: The Fracture Risk Assessment Tool (FRAX) is a validated clinical fracture risk calculator that estimates 10-year risk of both major osteoporotic and hip fractures in the general population. However, its role in patients with human immunodeficiency virus (HIV) infection is still not clear because may underestimate their risk.
Objectives: To assess the bone mineral density (BMD) and 10-year fracture risk according to FRAX in HIV-infected patients followed in a tertiary hospital of Madrid and compare them with the ESOSVAL cohort, which included 11035 patients and is representative of the non-HIV population seen in Spanish tertiary hospitals.
Methods: We performed a cross-sectional study in which FRAX and BMD values were determined in a prospective cohort that included HIV-infected patients seen our center during the period from 2010 to 2015. Collected data included demography, comorbidities, treatment, risk factors required for the FRAX calculation and densitometric variables.
Results: 97 patients from a total of a total of 311 had bone densitometry data and FRAX assessment available and were included in this study. The mean age of the patients was 55.4 years (range: 50–80), 75 were men (77%), most of them were Caucasians (89%), with a mean body mass index of 24.2 (range: 15–32.7). Median time of HIV infection was 194 months (interquartile range [IQR]: 155.2- 259), median nadir of CD4+ cells was 168 (IQR: 81–308) and concomitant hepatitis C virus infection was present in 40%. Among the risk factors included in FRAX calculation, 44% reported smoking, 10% inadequate alcohol consumption and 3% hyperthyroidism; there was no history of steroid therapy or previous fractures and only one had a family history of hip fracture. The mean value of BMD in lumbar spine (LS) was 0.9 g/cm^2 (range: 0.83–0.99) and in femoral neck (FN) 0.74 g/cm^2 (range: 0.65–0.82). For the comparison with the ESOSVAL cohort the worst value of T-score in either LS or FN was chosen and the patients were classified according to WHO definitions; the results are presented in the table.

	Men 50–64y		*p*	Women 50–64y		*p*
	HIV (n=68)	ESOSVAL (n=2983)		HIV (n=21)	ESOSVAL (n=3043)	
T-score ≤-2,5	14%	12.6%	0.606	33%	21%	0.167
T-score -1 to -2,5	56%	48.9%	0.255	52%	50.1%	0.834
FRAX major fracture ≥10	1.8% (0.4–5.1)	0.1% (0–0.2)	0.002*	2,36% (1.3–4.1)	0.6% (0–1)	0.015
FRAX hip fracture ≥3	0.47% (0–3.5)	0.1% (0.-0.3)	0.002*	0.57% (0–2)	0.7 (0.4–1.1)	0.702

Only the data for the 50–64 years group were compared because the number of older HIV patients in our center was small. No significant differences were found between the categories of osteopenia and osteoporosis in both genders, but there was a significant difference with respect to the risk of both major and hip fractures in males, being higher in patients with HIV infection compared to the population of the ESOSVAL cohort.
Conclusions: HIV-infected patients followed in our center do not show significant differences regarding the prevalence of osteopenia and osteoporosis compared to non-HIV Spanish population represented by the ESOSVAL cohort. However, a trend towards a lesser BMD is seen in all HIV infected groups. The fracture risk estimated by FRAX is significantly higher in HIV-infected men probably due to a higher frequency of associated risk factors.
Disclosure of Interest: None declared
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FRI0547 OSTEOPOROSIS AND BONE METABOLISM IN SYSTEMIC SCLEROSIS

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Background: Systemic sclerosis (SSc) has been associated with bone loss and increased risk for bone fractures. Disease-related factors, age, corticosteroid therapy may be associated with increased bone turnover and bone loss.
Objectives: Here we performed a detailed study on osteoporosis in SSc. We performed bone density assessment by DXA, as well as peripheral forearm quantitative CT (pQCT). In addition, we assessed bone biomarkers and correlated bone- and disease-associated measures.
Methods: Altogether 44 SSc patients (36 women, 8 men; age: 64.1 years; disease duration: 17.6 years) were randomly recruited for the study. Bone density was assessed by DXA at the lumbar spine and femoral neck. pQCT (Stratec) is able to assess total, trabecular and cortical density. We also determined FRAX, levels of vitamin D, as well as bone markers (Ca, PTH, osteoclacin, P1NP, beta-CTX), markers of autoimmunity (ANA, ACA and anti-Scl70) and clinical manifestations of the disease. Statistical analysis was performed by SPSS v22.0.
Results: Vitamin D levels were lower (53.9 +/- 36.8 nM) than the normal range (>75 nM). 34 out of 44 patients (77%) had D-hypovitaminosis. Abnormally increased PTH, P1NP, OC, CTX levels were observed in 10, 7, 2 and 6 patients, respectively. Previous fractures occurred in 19 patients (43%). The vertebral and hip FRAX values were 13.5% and 4%>respectively. By DXA, osteoporosis of the lumbar spine and hip was detected in 10 and 10 patients, while osteopenia were found in 16 and 20 patients, respectively. With respect to pQCT, total and trabecular bone density in SSc patients (248.4 and 150.9 mg/cm^3) was significantly lower than in healthy controls (354 and 193 mg/cm^3, respectively). Higher OC levels were assocated with the diffuse form of SSc (R=0.330, p=0.035). Longer disease duration correlated with lower pQCT total (R=-0.341, p=0.023) and trabecular density (R=-0.336, p=0.026). Interestingly, most bone markers (P1NP, OC, CTX) positively correlated with gastrointestinal manifestations. Furthermore, pQCT total bone density was siognificantly lower in patients with pulmonary involvement, digital ulcer and anti-Scl70+.
Conclusions: A high proportion of SSc patients have osteopenia or osteoporosis, as well as low vitamin D levels. As determined by pQCT, trabecular loss is more common. Both total and trabecular bone loss, as well as bone markers may be associated with disease duration, anti-Scl70 and some organ manifestations. SSc patients should be screened and treated for osteoporosis.
Disclosure of Interest: None declared
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FRI0548 INFLUENCE OF HOMOCYSTEINE AND VERTEBRAL FRACTURES ON PREVALENT ABDOMINAL AORTIC CALCIFICATION IN POSTMENOPAUSAL WOMEN: A MULTICENTRIC CROSS-SECTIONAL STUDY

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Background: Osteoporosis and cardiovascular diseases are two major public health problems. Both are associated with high morbidity, long-term hospitalization, mortality and loss of independence leading to institutionalization. Vertebral morphometry using dual-energy X-ray absorptiometry (DXA) also known as vertebral fracture assessment (VFA) is a fast, low-radiation technique which produces images that are of sufficient quality to be used to diagnose the presence of vertebral deformity consistent with fracture. VFA has demonstrated utility for vertebral visualization and thus is an important tool for fracture detection in women and men. It has been shown also in many populations that this technique can simultaneously identify abdominal aortic calcification (AAC). Hyperhomocysteinemia, a condition that recent epidemiological studies have shown to be associated with increased risk of vascular disease. A potential role of homocysteine in bone fragility has been considered from the observation of a high prevalence of osteoporosis in subjects with homocystinuria.

Objectives: The main of this study was to examine the relationship between plasma homocysteine (Hcy), asymptomatic osteoporotic vertebral fractures (VFs) using vertebral fracture assessment (VFA) and prevalent abdominal aortic calcification (AAC) in Moroccan postmenopausal women.
Methods: The study cohort consisted of 188 consecutive postmenopausal women with no prior known diagnosis of osteoporosis or taking medication interfering with bone metabolism. Mean age, weight, height, body mass index and plasma homocysteine were determined. Lateral VFA images and scans of the lumbar spine and proximal femur were obtained using a Lunar Prodigy Vision densitometer (GE Healthcare Inc., Waukesha, WI). VFs were defined using a combination of Genant's semiquantitative approach and morphometry. VFA images were also scored for prevalent AAC using a validated 24 point scale.
Results: Fifty-eight (30.9%) patients had densitometric osteoporosis. VFs were identified using VFA in 76 (40.4%) patients: 61 women had grade 1 VFs and 15 had grade 2 or 3 VFs. One hundred twenty nine women (68.6%) did not have any detectable AAC, whereas the prevalence of significant atherosclerotic burden defined as AAC score of 5 or higher, was 13.8%. A significant positive correlation between AAC score and homocysteine was observed. Women with extended AAC, were older, had a lower weight, BMI and BMD, higher homocysteine levels and more prevalent VFs than women without extended AAC. Multiple regression analysis showed that the presence of extended AAC was significantly associated with Age and grade 2/3 VFs and not independently associated with homocysteine levels.
Conclusions: This study did not confirm that homocysteine is important determinant of extended AAC in postmenopausal women. However, this significant atherosclerotic marker is independently associated with VFs regardless of age.
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FRI0549 IMPACT OF CHEMOTHERAPY ON BONE MINERAL DENSITY IN POSTMENOPATHIC WOMEN WITH BREAST CANCER IN TREATMENT WITH AROMATASE INHIBITORS

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Background: Aromatase inhibitors (AI) been related to an increased risk of bone loss and fractures in women receiving these drugs as adjuvant treatment, but few studies have assessed the impact of prior chemotherapy (CT) on bone mineral density (BMD) loss associated to AI.
Objectives: To assess the impact of CT prior to the initiation of AI on BMD in postmenopausal patients with breast cancer (BC) seen at a Spanish tertiary care hospital.
Methods: We perform a longitudinal study in patients who received AI after initial CT (CT group) or as adjuvant therapy without prior CT (non-CT group) followed up for 12 months. BMD was assessed by DXA in lumbar spine (LS) and femoral neck (FN) at baseline and after 12 months of AI treatment following the usual protocol of our center, with in vitro coefficient of variation of 1% in both locations and estimated minimal significant change (MSC) of 0.0223 g/cm^2 in LS and 0.0288 g/cm^2 in FN. Demographics, neoplastic disease data, and osteoporosis risk factors were also collected.
Results: 69 patients (CT group 39, non-CT group 30) attended at our center between August 2011 and December 2014 were included. Mean age at diagnosis was 59.9±7.7 years, most of them have BC stages I-II (84%). Most frequent AI in both groups was letrozole (95%). Baseline characteristics were similar, except for age at diagnosis that was significantly higher in the non-CT group, these data are presented in the table. Mean BMD at the start of AI was significantly lower in LS in the CT group (0.7793 g/cm^2) than in the non-CT group (0.8483 g/cm^2) (p=0.018), but no difference in FN (CT 0.6764 g/cm^2 and non-CT 0.7077 g/cm^2, p=0.123). A significant difference in LS (CT 0.7685 g/cm^2, non-CT 0.8397 g/cm^2, p=0.003) was found in the comparison of BMD means between the two groups at 12 months but not in FN (CT 0.6598 g/cm^2, non-CT 0.6689 g/cm^2, p=0.369). After 12 months of treatment with AI, mean BMD change in the CT group in LS was -0.0107 g/cm^2 (95% confidence interval [CI] -0.0269, +0.0055, p=0.189) and in FN -0.0165 g/cm^2 (95% CI: -0.0339, +0.0009, p=0.063), while in the non-CT group the means changes were in LS -0.0085 g/cm^2 (95% CI -0.0416, +0.0244, p=0.599) and FN -0.0388 g/cm^2 (95% CI -0.0707, -0.0068, p=0.019). During the study period there was a fracture in each group (CT 2.6%, non-CT 3.3%).

	CT group (n=39)	Non-CT group (n=30)	p-value
Age at diagnosis, years (mean ± SD)	58.2±7.3	62±7.9	0.042*
Age of menarche, years (mean ± SD)	12.5±1.2	12.5±1.1	0.980
Age of menopause, years (mean ± SD)	48±4.2	48.9±4.1	0.394
Age >65 years	13 (33%)	9 (30%)	0.284
Body mass index (mean ± SD)	25.8±6	27.6±4.3	0.184
Osteopenia/osteoporosis before AI	35 (89%)	26 (86%)	0.692
Smoking	5 (13%)	2 (6%)	0.401
Previous fracture	2 (5%)	2 (7%)	0.786
Family history of fracture	2 (5%)	2 (7%)	0.786
Calcium + Vitamin D Supplements	26 (67%)	14 (47%)	0.095
Radiotherapy	27 (69%)	23 (77%)	0.493
Prior tamoxifen	5 (13%)	3 (10%)	0.717
Bisphosphonates	2 (5%)	1 (3%)	0,717

Conclusions: Our results do not demonstrate that CT prior to AI treatment significantly decreased BMD during the first year. Mean change in both LS and FN in CT group was not superior to MSC nor to the change in non-CT group, although they had a significantly lower mean BMD in LS than the latter group and this difference was maintained at the end of the study period.
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FRI0550 MALE PATIENTS WITH RHEUMATOID ARTHRITIS HAVE AN INCREASED RISK OF OSTEOPOROSIS: FREQUENCY AND RISK FACTORS

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Background: Osteoporosis is a well-known extra-articular manifestation of rheumatoid arthritis (RA) and almost 2 times higher prevalence of osteoporosis was reported in female patients with RA than in healthy subjects. Accordingly, patients with RA are at increased risk of fragility fractures that lead to significant morbidity and mortality and higher healthcare cost. However, most previous epidemiologic studies regarding osteoporosis in RA have focused on female subjects, and little attention has been given to male patients with RA.
Objectives: To compare the prevalence of osteoporosis between male patients with RA and healthy subjects and to identify the risk factors of osteoporosis in male patients with RA.
Methods: By using a cross-sectional design, we recruited 76 male patients with RA aged 50 years and over and 76 sex-matched and age-matched healthy subjects at a university-affiliated rheumatology centre in South Korea from August 2014 to August 2016. We measured bone mineral density (BMD) at L1–4 levels of the lumbar spine and the hip (femoral neck and total hip) in all the subjects by using dual-energy X-ray absorptiometry (DEXA). We assessed the prevalence of osteoporosis defined as a T-score of ≤-2.5 according to the WHO criteria. We also investigated potential risk factors of decreased BMD and the presence of osteoporosis in male patients with RA using linear and logistic regression analyses, respectively.
Results: The mean age and body mass index (BMI) of the male patients with RA were 64.5 years and 22 kg/m^2, respectively, which were comparable with those of the healthy controls. The overall prevalence of osteoporosis at either the spine or the hip in the male patients with RA was significantly higher than that of the healthy controls (22.4% vs 10.5%, respectively; p=0.049). However, no significant differences in the prevalence of osteoporosis at the spine (19.7% vs 10.5%, respectively; p=0.113) and the hip (3.9% vs 0%, respectively; p=0.245) were found between the patients with RA and the controls. For the male patients with RA, the median disease duration was 37 months, the mean 28-joint Disease Activity Score using erythrocyte sedimentation rate (DAS28-ESR) was 3.28 and the median modified total Sharp score was 6. An increased titre of anti-cyclic citrullinated antibody showed a trend toward lower L1–4 BMD (β=-0.0007, p=0.057) in the multivariable linear regression analysis. In addition, DAS28-ESR of >3.2 was independently associated with the presence of osteoporosis (OR=3.85, 95% CI=1.13–13.17, p=0.032) after adjusting for confounding factors. The patients with RA whose BMIs were ≤22 kg/m^2 had a higher risk of osteoporosis (OR=3.43, 95% CI=1.04 -11.33, p=0.043).
Conclusions: Similar to their female counterparts, the frequency of osteoporosis in male patients with RA had an osteoporosis prevalence of about 2.1 times higher than that of the healthy subjects. Increased DAS28-ESR was an independent risk factor of osteoporosis. Our data suggest that appropriate management for osteoporosis in patients with RA is crucial not only for postmenopausal women, but also for men aged 50 years and over.
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FRI0551 USE OF GLUCOCORTICOID IS THE RISK FACTOR FOR INADEQUATE RESPONSE TO THE TREATMENT OF OSTEOPOROSIS BY DENOSUMAB

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Background: In treating rheumatoid arthritis (RA), T2T (treat-to-Target) is the most reliable treatment strategy. Recent reports have indicated that reaching normal levels of bone mineral density (BMD) might be important for the prevention of fractures in osteoporosis treatment (reference 1 and 2).From this fact, there might be a possibility that T2T targeting BMD might be feasible also in osteoporosis treatment. In doing so, medicines with the ability to sufficiently increase BMD at a fast speed should be needed. Denosumab (DMAb) specifically inhibits the receptor activator for nuclear factor-kappa B ligand (RANKL) improves BMD rapidly at lumbar or hip. Therefore, DMAb is one of candidate drugs for T2T