probable value of T-score in patients with known rates of calcification of the coronary and carotid arteries were obtained by regression analysis. These factors were equivalent density of coronary calcinoses (p=0,0046), the volume of the carotid calcifications (p=0,0039), the mass of calcifications of the carotid arteries (p=0,0054) and the presence of a stenosis of the carotid arteries (p=0.0001).The predictive model for estimating the probable value of T-score has been is designed using regression coefficients of each of the factors. The value is equal to the Fisher statistic F=9,52, p-value <0.000001, multiple correlation model's coefficient is 0.753.

Conclusions: The results of this study indicate that rates of calcification of the carotid and coronary arteries, resulting in the planned survey on MSCT patients with multifocal atherosclerosis have a high predictive capacity for assessing the probable value of the T-score and early detection of osteopenic syndrome in these patients.

Disclosure of Interest: None declared

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FRI0537 PREVENTION STRATEGY OF OSTEOPOROTIC FRACTURES IN PORTUGAL: AN ANALYSES ON A COHORT OF HIP FRACTURED PATIENTS

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Background: Despite the fact that Portugal has one of the lowest rates of hip fractures in Western Europe, more than 10.000 patients are admitted every year to the Portuguese National Health Service due to hip fragility fractures. The burden of the problem will tend to increase in coming years, unless effective preventive measures are put in place.[1]

Objectives: The aim of our work was to evaluate the percentage of patients under osteoporotic treatment (OT) before and after a hip fracture (HF) and compare these results with the percentage of patients who should be under treatment, according to FRAX model and Portuguese cost-effectiveness guidelines (PG) for OT.[1]

Methods: Patients diagnosed with a HF, between May 1st and October 31st 2013, from a single tertiary hospital, were included in this transversal study. Patients or their primary caregiver were contacted by phone to gather data regarding demographic and clinical features, including risk factors for Osteoporosis (OP) defined by FRAX®. Clinical data was obtained from medical files.

FRAX® without mineral bone density was used to calculate the 10 year fracture risk. For each patient the FRAX® was scored according to data available the day before the present HF (ie the current fracture was not considered as a previous fracture for the purpose of risk prediction). Thresholds for therapeutic intervention were defined according to PG: a 10-year probability of a major osteoporotic fracture (OF) ≥11% and/or a 10 year probability of HF ≥3%[1].

Results: The mean age of the population (n=130) was 81.6±8.6 years, and 69.2% were female. Before the current HF, only 23 (17.7%) of the patients had been prescribed some form of medication for OP: bisphosphonates (n=2), strontium ranelate (n=3) and calcium + vitamin D supplementation (n=13); the other patients or caregivers didn't specify the ongoing medication.

About 65 patients had a previous fracture, of which 8 patients had ≥1 fragility fracture of the hip; 6 had ≥1 symptomatic vertebral fragility fracture and 16 had ≥2 fragility fractures, independently of the site of the fracture. According to PG, all these 30 (26%) patients should be under OT without the need for FRAX® risk calculation.

The mean 10-year major OF probability was 21.2±14% and the mean 10-year HF probability was 13.7±12.9%. According to FRAX®, 104 (80%) of the patients had indication to start OT based on the 10-year risk of major OF and 117 (90%) based on the 10-year risk of HF.

After hospitalization, although all the patients had formal indication for treatment, only 11 (8.5%) patients had received a prescription for OT up to one year after the fracture event.

Conclusions: Similar to other countries, the percentage of patients under OT (before and after HF) in Portugal is extremely low. Risk estimation by FRAX® and application of current PG would allow clinicians to identify these patients and introduce appropriate preventive measures. Continued efforts are needed to promote timely prevention, most especially after the first fragility fracture.

References:

[1] Marques A, Rodrigues AM, Romeu JC et al. Multidisciplinary Portuguese recommendations on DXA request and indication to treat in the prevention of fragility fractures. Acta Reumatol Port 2016;41:305–321.

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FRI0538 EVALUATION OF FACTORS THAT INCREASE FRACTURE RISK IN BREAST CANCER

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Background: Women with breast cancer are at an increased risk of fractures. This is present in patients with both active and treated disease. In addition to established risk factors of fractures, patients with breast cancer are exposed to additional factors that further compromise bone strength. These factors primarily include: the malignancy interfering with bone metabolism and breast cancer treatments inducing bone loss.

Objectives: To evaluate fracture risk in active and treated breast cancer patients, and to understand the role bone mineral density (BMD) plays in predicting fracture risk.

Methods: The study population included breast cancer patients with active and treated disease referred to dual-energy X-ray absorptiometry (DEXA) scanning at the Royal Lancaster Infirmary between 2004–2015. Patients on aromatase inhibitors were excluded because of its' negative effect on oestrogen.

From this population, we collected BMD measurements of the femur and lumbar vertebra. Alongside information on physical characteristics such as age, height, weight, body mass index (BMI), average tissue thickness, lean and fat mass were measured.

To evaluate other precipitating factors known to increase fracture risk we included: smoking status, steroids use, alcohol, family history of fractures, diagnosis of rheumatoid arthritis and secondary osteoperosis.

Data analysis was done on R 3.3.2 software. Odds ratios were calculated using logistic regression and age adjusted models were compared using the likelihood ratio test. Categorical data was analysed using Chi squared and Fischer's exact test, while continuous data was analyzed using t-test.

Results: The study population was a total of 306 patients with a mean age of 63.6 years. 146 of the study group had active disease, while 160 patient were breast cancer survivors. Of the total population 87 (28%) had sustained at least one fracture.

Active breast cancer insignificantly increased fracture risk in comparison to the cancer survivor population (*OR=1.330, 95% CI=0.801–2.218, p=0.271).*

Physical characteristics that significantly increased fracture risk included increased age and decreased average fat percentage (Table 1). BMD reduction in the femoral neck and all vertebrae significantly increased odds of having a fracture (Table 2). External factors such as smoking status, alcohol consumption, family history and steroid use had no significant effect.

Table 1. Physical Characteristics and Fracture Risk

	Odds Ratio	95% Confidence Interval	*p*-value
Age	1.407	1.106–1.803	0.043
BMI	0.832	0.639–1.074	0.159
Average Tissue Thickness	0.929	0.847–1.016	0.108
Average Fat Percentage	0.069	0.005–0.883	0.040
Fat Mass	0.997	0.994–0.999	0.032
Lean Mass	1.003	1.000–1.006	0.032

Table 2. BMD Results from DEXA Scan

	Odds Ratio	95% Confidence Interval	*p*-value
Left Neck of Femur	0.035	0.035–0.309	0.002
Right Neck of Femur	0.063	0.006–0.561	0.013
Lumber Vertebra Total (L1–4)	0.063	0.013–0.285	0.0002

Conclusions: In conclusion, this study emphasizes DEXA measurements are the best predictive tool for fractures in breast cancer patients. Thus further supporting the need for increased BMD surveillance for those diagnosed with breast cancer who are not on aromatase inhibitors.

References:

[1] Body J: Increased fracture rate in women with breast cancer: a review of the hidden risk. Body BMC Cancer 2011, 11:304.

[2] R Core Team (2016). R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria.

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FRI0539 IMPACT OF THE IMPLEMENTATION OF A FRACTURE LIAISON SERVICE IN PHARMACEUTICAL EXPENSES FOR OSTEOPOROSIS

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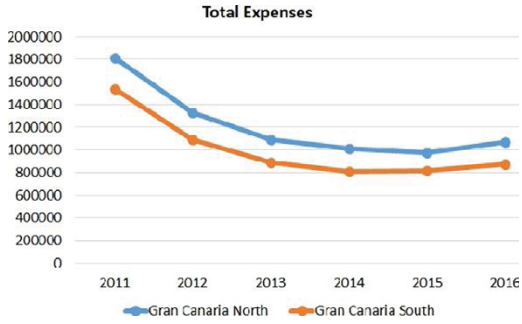
Background: In 2012 a Fracture Liaison Service (FLS) was implemented in Hospital Dr Negrin

Objectives: To analyze the economic impact of the FLS on pharmaceutical expenditure for osteoporosis.

Methods: Expenditure on osteoporosis medication (government inpunt) was collected from January 1th, 2011 to October 1th, 2016. The data distinguish group I (calcium and vitamin D), group II (Bisphosphonates, denosumab, SERM, strontium and teriparatide) and total expenditure (sum of groups I and II). Intravenous bisphosphonates were not included.

Gran Canaria island is organized in two health areas; the North and the South areas. The population aged >65 years in the North and South areas in 2016 were

63.535 and 52.453 people, respectively. In the Gran Canaria South area there is no formal FLS.
An estimate of the number of cases of fracture attended in FLS and that was still under treatment in septiembre 2016 was calculated.
Results: The total expenditure on prescriptions for osteoporosis in 2016 (January to September) in the North area was 1,226,702 €, while in the South area it was 1,069,606 € (a 14% higher in the North area). The expenditure in 2016 for group II (bisphosphonates and equivalents) was 799,840 € and 656,301 € respectively (22% higher in the North area). The evolution of the percentage of total expenditure in osteoporosis for the North area in relation to the total of Gran Canaria was the following: 53.6% in 2011; 54.2% in 2012; 54.4% in 2013; 54.3% in 2014; 53.4% in 2014 and 53.4% in 2016 (Figure). For group II drugs, the percentage of 55% for the North area did not change between 2011 and 2016.
The number of drug prescriptions for group I was 7,551 units in the North area and 7,732 in the South area. For group II, the figures were 3,917 units in the North area and 2,873 units in the South area. That is, the prescription of group I drugs in the January-September 2016 period was similar in both areas (2% higher in the South area), while for Group II it was 36% higher in the North area, being this difference stable between 2011 and 2016.
Between 2012 and 2016, 1,297 patients have been evaluated in the FLS, of which 75% have indication of bisphosphonate or equivalents. The average adherence to treatment at 12 and 24 months is 70% (1). The estimate is that approximately 681 patients (17%) of the 3,917 who receive a drug from group II in the North area in October 2016 derivates from the FLS.



Conclusions: The implantation of a FLS, despite supposing around 16% of the percentage of patients treated with bisphosphonates and equivalents in the health area Gran Canaria North derivates from the FLS has not led to an increase in pharmaceutical expenditure for osteoporosis. We believe that one of the reasons for the non-increase in spending is the rational use of drugs for osteoporosis.
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[1] Naranjo A et al. Osteoporos Int. 2015;11:2579.
Disclosure of Interest: None declared
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FRI0540 EVALUATION OF BONE QUALITY USING THE NEW TRABECULAR BONE SCORE (TBS) TOOL IN RHEUMATOID ARTHRITIS PATIENTS

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Background: Patients affected by Rheumatoid Arthritis (RA) show an increased risk of low bone mass, as a result of multi-systemic disorders including toxic drug, low vitamin D levels and physical inactivity. Trabecular Bone Score (TBS), is an index extracted from the dual-energy X-ray absorptiometry (DXA) images, that provides an indirect measurement (Score) of bone axial microarchitecture and allows to get information about bone quality (1,2).
Objectives: The aim of this investigation was to evaluate bone quality in RA patients (high risk population) receiving vitamin D supplementation from at least 3 month, using the TBS.
Methods: 108 female patients (mean age 61±8 years) affected by RA and 60 age- matched controls (CNT) (mean age 64±11 years) were enrolled. Bone Mineral Density (BMD, g/cm^2) of the lumbar spine (L1-L4) was analyzed using a DXA scan (GE,Lunar Prodigy). Lumbar spine TBS (TBS iNsight Medimaps) was derived for each spine DXA examination. All patients were evaluated for serum 25 hydroxyvitamin D (25(OH)D) concentrations.
Results: 78 RA patients (80%) presented a bone loss that was significantly lower when compared with control group ($p<0.001$). Likewise, lumbar spine TBS score was found significantly lower in RA patients compared with CNT ($p<0.001$). Finally, RA patients showed lower 25(OH)D concentrations (18.4±1.3 ng/ml) than CNT (26.2±0.9 ng/ml; $p<0.04$).
Conclusions: This study shows in RA patients a reduction of TBS values that seem placed side by side with reduced BMD values and 25(OH)D serum concentrations. Therefore, TBS could become a new and safe diagnostic tool for the quantification of the bone quality and related osteoporosis, in chronic systemic inflammatory rheumatic diseases, such as RA.
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Disclosure of Interest: None declared
DOI: 10.1136/annrheumdis-2017-eular.6126

FRI0541 RELATIONSHIP BETWEEN CHRONIC PERIODONTITIS AND BONE MINERAL DENSITY IN A CASE-CONTROL STUDY OF PATIENTS WITH RHEUMATOID ARTHRITIS AND NON-INFLAMMATORY JOINT DISEASE

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Background: The association between two chronic inflammatory diseases such as rheumatoid arthritis (RA) and periodontitis (PD) may be explained by causal and noncausal pathways. A possible mechanism in the increased PD observed in patients with RA is systemic bone loss due to the inflammatory process itself among others factors. Several studies have reported associations between OP and PD, not confirmed in other studies.
Objectives: 1.To determine whether OP is associated with PD and with PD severity.
Methods: Observational cross-sectional, case-control study of RA patients ≥18 y.o. meeting ACR/EULAR 2010 criteria for RA in a Rheumatology Dept. and a control group with a non-inflammatory joint disease, with at least 4 teeth, without dental prophylaxis or antibiotic intake 6 months before. Socio-demographic and anthropometric variables with smoking status,Graffar scale, stress level, annual dental prophylaxis, and co-morbidities such as diabetes mellitus (DM), dyslipidemia (DS), ischemic cardiovascular disease (ICD) and history of low-impact fractures. Dual-energy x-ray absorptiometry (DXA) (g/cm^2) was performed with a DXA LUNAR (GE HealthCare) in lumbar spine and femoral neck. Periodontal Variables included plaque index, bleeding on probing, probing pocket depth, recession, clinical attachment level (CAL). Full mouth CAL and periapical x-rays were taken. CAL was classified according to the European Workshop in 2005 (Tonetti), into level 0 (absence), TL1 (mild), TL2 (severe). Statistical Analysis: t-student test, Kruskal Wallis, Chi-square with Stata 13.1.
Results: We studied 344 patients: 187 RA (147 F/40 M) and 157control (101F/56M). Both groups were comparable in age 54.9 (17.9) y.o., body mass index 27.8 (4.6), stress level, DM and ICD. Differences in gender (>no. of males in controls), socioeconomic status (lower level in RA), >no. of current and former smokers RA (19.2%vs 8.9%/24.6%vs 11.5%),OP (23.4% RA vs 7.8%), DS (hipertrygliceridemia 11.2% RA vs 4.4%). PD was found in 97.3% of RA patients vs 66.2% of controls. DEXA was performed in 303 patients: 163 RA/140 controls that showed OP in 38 (23.3%) and 13 (9.3%) of RA and control groups as well as osteopenia in 47 (32.4%) and 16 (11.3%) respectively ($p<0.001$); 81% of these patients presented PD. There was association between PD and OP/osteopenia, so patients with PD had greater abnormal BMD 88% vs 76.3% with normal BMD; patients without PD showed greater normal BMD with statistically significant difference (23.7% vs 11.1%) (p=0.008).
Conclusions: 1. PD was observed in 81% of the patients evaluated with BMD; of these, 89% had OP/ osteopenia, and among the patients without PD a significant normal BMD predominated. 2. PD was found in 97% of RA patients *versus* 66% of controls; similarly OP was present in 23.3% of RA patients *versus* 9.3% of controls, with the diference being significant. 3. There was no association between BMD and PD severity.
Disclosure of Interest: None declared
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FRI0542 PREVALENCE OF VERTEBRAL BODY DEFORMITIES RELATED TO OSTEOPOROSIS IN PATIENTS WITH NON-TRAUMATIC LUMBAR OR DORSAL ACUTE PAIN

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Background: Presence of vertebral body deformities is considered a relevant issue in order to chose a particular treatment in patients with osteoporosis. However, only remarcable deformities are properly identified and registred while those, less striking can just be unnoticed in radiological studies not related to osteporosis studies. One of the most usual radiographic study of the axial skeleton is the lumbar and dorsal acute pain. This group of patients is, indeed, suitable stablish proportions of any grade of vertebral body deformities according to the Genant scale.
Objectives: The goal of present study is to determine prevalence of vertebral body deformities in postmenopausial patients radiologically assessed due to lumbar or dorsal non traumatic related pain.
Methods: We performed a simple randomization of the registries of female patients with 65 years old or more who consulted due to dorsal or lumbar