	Hospital Negrin	Hospital Candelaria	P
Number of patients	80	105	
Age, mean (SD)	82 (7)	82 (8)	0.96
Sex, women n (%)	64 (80)	71 (67)	0.06
Previous fracture, n (%)	13 (16)	12 (11)	0.34
Previous treatment			
Ca and VD, n (%)	26 (32)	13 (12)	<0.001
Bisphosphonate or equivalent, n (%)	8 (10)	9 (8)	0.73
Treatment in the discharge report			
Ca and VD, n (%)	77 (96)	19 (18)	<0.001
Bisphosphonate or equivalent, n (%)	73 (91)	9 (8)	<0.001
Treatment at 6 months			
Ca and VD, n (%)	60 (90)*	27 (29)**	<0.001
Bisphosphonate or equivalent, n (%)	50 (75)*	14 (15)**	<0.001

Ca and VD: calcium and vitamin D. *Data available from 66 patients; 9 not located, 4 deaths, 1 atypical fracture. **Data available from 93 patients; 4 not located, 8 deaths.

References:
[1] Naranjo A et al. Osteoporos Int. 2015;11:2579–85.
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FRI0531 DUAL ENERGY X-RAY ABSORPTIOMETRY TESTING IN ELDERLY MEN WITH PROSTATE CANCER INITIATING ANDROGEN DEPRIVATION THERAPY REDUCES SUBSEQUENT FRACTURE RISK

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Background: Androgen deprivation therapy (ADT) is a mainstay therapy for prostate cancer, and a risk factor for bone mineral density (BMD) loss and fractures. Despite this risk, few patients undergo measurement of BMD when initiating ADT. Conceivably, screening for bone loss could lead to identification of patients at risk, and to implementation of bone conserving therapy (BCT), and subsequent decrease in fracture risk.
Objectives: To evaluate the utilization of Dual Energy X-ray Absorptiometry (DXA) testing for measurement of BMD in elderly patients with prostate cancer initiating treatment with ADT, and the effects of testing on subsequent fracture risk.
Methods: We conducted a population-based retrospective cohort study using the Surveillance, Epidemiology, and End Results (SEER) and Texas Cancer Registry (TCR) databases linked to Medicare claims. Medicare is the United States national health insurance program for individuals aged 65 and older. We identified all men over 66 years old with a diagnosis of prostate cancer who received ADT. We identified claims for DXA within 12 months prior, and 12 months after ADT initiation. We assumed that if patients had DXA testing in the year before ADT, this would not be repeated. We then ascertained claims for fractures during follow-up after ADT onset, comparing those who had undergone DXA with those who had not. Statistical analysis included multivariate logistic regression adjusting for demographic and clinical variables.
Results: The cohort included 36,739 men with prostate cancer treated with ADT; 48.3% were over 75 years of age and 75% were white. Only 5.2% of the patients underwent DXA within the window of evaluation. Men were more likely to have DXA id the were white vs. African American, and if the lived in census tracts with higher socio-economic status. When comparing the incidence of fractures, 11.3% of those who underwent DXA had a fracture, compared to 19.4% of those who did not undergo DXA ($p<0.0001$). In the multivariate model an increase in the odds for a fracture was associated with older age, being White, having a prior history of osteoporosis or fracture, were evaluated with DXA.A decrease in the odds for a fracture was associated with having undergone DXA testing (0.70; 95% CI 0.61 – 0.80).
Conclusions: Very few patients with prostate cancer starting ADT undergo DXA despite being at increased risk of fracture. DXA use was associated with socioeconomic status. Our results show that patients who underwent DXA were significantly less likely to have a fracture. Our findings suggest that DXA should be performed in all patients with prostate cancer initiating ADT.
References:
[1] V. B. Shahinian, et al. Risk of Fracture After Androgen Deprivation for Prostate Cancer. N Engl J Med, 352:154–164, 2005.
[2] Philip J. Saylor, Donald S. Kaufman, M. Dror Michaelson, Richard J. Lee, and Matthew R. Smith. Application of a Fracture Risk.
[1] Algorithm to Men Treated With Androgen Deprivation Therapy for Prostate Cancer. J Urol. 2010 June; 183(6): 2200–2205.
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FRI0532 DUAL ENERGY X-RAY ABSORPTIOMETRY TESTING IN WOMEN WITH BREAST CANCER INITIATING THERAPY WITH AROMATASE INHIBITORS REDUCES SUBSEQUENT FRACTURE RISK

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Background: Estrogen receptor positive breast cancer is commonly treated with aromatase inhibitors (AI). A well-known adverse effect of this therapy is osteoporosis and related bone fractures. National guidelines have promoted the use of dual energy X-ray absorptiometry (DXA) for screening purposes.
Objectives: To evaluate the association between use of DXA among women with breast cancer treated with AI enrolled in Medicare, and subsequent fracture risk.
Methods: Retrospective cohort study using the Texas Cancer Registry (TCR) and the National Cancer Institute's Surveillance, Epidemiology and End Results (SEER) data linked with Medicare claims. To help estimate the likelihood of performing a DXA, a multivariable logistic regression model was used. Covariates of age, ethnicity, stage, residence area, and socioeconomic variables were controlled for the analyses. The outcome variable a DXA claim within 12 months after the initiation of the AI therapy. Cox regression model to evaluate time to first fracture after initiation of AI.
Results: The total number of cases within the SEER-Medicare database was 15,350 and in the TCR 4,532. Women aged between 66–74 years and Non-Hispanic white were more likely to get DXA than were Hispanic and Non-Hispanic Black.
In TCR, 2714 patients did not get treatment for osteoporosis in the first 12 months after AI therapy initiation. 2989 patients did not receive treatment for osteoporosis within 12 months of obtaining their first DXA scan. 1330 patients who did not undergo DXA were not treated for osteoporosis; and 1384 patients who underwent DXA got treated for osteoporosis.
The duration of AI treatment was negatively associated with the risk of fracture. Women who received DXA scan showed 11% lower risk of fracture than those who were not scanned (HR 0.89 (0.83, 0.94).
Conclusions: National guidelines suggest to obtain a DXA and start bisphosphonate therapy in female breast cancer patients who are treated with AI therapy. Our data suggests that the majority of women in the TCR and SEER database were not treated for osteoporosis within the first 12 months after initiation of AI therapy. Women who received DXA scan showed a lower risk of fracture than those who were not scanned.
References:
[1] National guidelines suggest to obtain a DXA and start bisphosphonate therapy in female breast cancer patients who are treated with AI therapy. Our data suggests that the majority of women in the TCR and SEER database were not treated for osteoporosis within the first 12 months after initiation of AI therapy. Women who received DXA scan showed a lower risk of fracture than those who were not scanned.
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FRI0533 INCIDENCE AND RISK FACTORS OF OSTEOPOROTIC FRACTURE IN PATIENTS WITH RHEUMATOID ARTHRITIS: A MULTICENTER COMPARATIVE STUDY OF THE FRAX CRITERIA AND WHO CRITERIA

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Background: The fracture risk assessment tool (FRAX) criteria and the bone mineral density (BMD) criteria of the World Health Organization (WHO) are widely used for the assessment of osteoporotic fracture. Rheumatoid arthritis (RA) is the only disease parameter for the evaluation of osteoporotic fracture in the FRAX model, unlike the WHO criteria. However, the input for RA is just a dichotomous variable in FRAX model.
Objectives: In this study, we evaluated the incidence and risk factors of osteoporotic fracture in patients with RA through the comparison of the FRAX criteria and WHO criteria.
Methods: This study is a multicenter study, including 479 RA patients in 5 hospitals and 384 healthy controls, between January 2012 and December 2016. All of the RA patients fulfilled the 1987 American College of Rheumatology (ACR) criteria or the 2010 ACR/European League Against Rheumatism (EULAR) criteria for RA. The FRAX criteria for high risk of osteoporotic fracture, which is a 10-year probability of $\geq$20% for major osteoporotic fracture or $\geq$3% for hip fracture, were calculated by the FRAX tool including the BMD values. The classification of osteoporosis, according to WHO criteria were based on T-score $\leq$ -2.5. We assessed various demographic factors, clinical and laboratory findings of RA, and

medication use for RA and osteoporosis, and then evaluated the incidence and risk factors for osteoporotic fracture.
Results: The mean age of RA patients was 61.7±11.9 years, and 426 patients were female (88.9%) with 353 postmenopausal women (82.9%). The BMD score of L-spine in RA patients was significantly lower than that in healthy control (-2.21±1.41 vs. 0.97±0.11, $p<0.001$). Osteoporotic fracture was detected in 81 (16.9%) patients with RA. In RA patients, 226 (47.2%) patients met the FRAX criteria for high risk of osteoporotic fracture, and 240 (50.1%) patients satisfied the WHO criteria. The result of the FRAX criteria was affected by the female sex, menopause, smoking, drinking, higher dose of glucocorticoid (≥5mg/day), vitamin D use, calcium use and proton pump inhibitor (PPI) use ($p<0.05$). In multiple linear analysis, the FRAX score to 10-year probability of ≥3% of hip fracture was associated with age (β=0.384, $p<0.001$), body weight (β=-0.110, $p=0.038$), erythrocyte sedimentation rate level (β=0.125, $p=0.010$), glucocorticoid dose (β=0.105, $p=0.024$), and PPI use (β= -0.123, $p=0.010$). The independent risk factors for FRAX criteria were age (OR 1.160, $p<0.001$), female sex (OR 3.942, $p=0.010$), body mass index (BMI) (OR 0.869, $p=0.001$), glucocorticoid dose (OR 1.167, $p=0.025$) and PPI use (OR 2.552, $p=0.019$), and those for WHO criteria were age (OR 1.021, $p=0.040$), glucocorticoid dose (OR 1.109, $p=0.046$) and smoking (OR 2.924, $p=0.031$).
Conclusions: Osteoporotic fractures were found in 16.9% of RA patients. The proportion of patients with high risk of osteoporotic fracture was 47.2% in the FRAX model and 50.1% in the WHO model. Age, female sex, lower BMI, higher dose of glucocorticoid, PPI use and smoking were independent risk factors for osteoporotic fracture in RA patients.
Disclosure of Interest: None declared
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FRI0534 REPEATED OSTEOPOROSIS SCREENING IN RHEUMATOID ARTHRITIS: ARE WE COMPLYING WITH GUIDELINES?

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Background: Osteoporosis rates are higher in patients with rheumatoid arthritis (RA). Patients with RA diagnosed with osteoporosis have a 30% increased risk of major fracture [1]. Monitoring response to osteoporosis treatment is recommended however there is no consensus on how frequently this should be performed. The International Society for Clinical Densitometry (ISCD), National Osteoporosis Foundation (NOF) and the American Association of Clinical Endocrinologists (AACE) all recommend repeat Bone Mineral Density (BMD) assessment within two years after initiating osteoporosis treatment to assess response to treatment [2–4]. Furthermore, the NOF and AACE recommend repeat screening every two years after diagnosis [3,4].
Objectives:
- To identify patients with RA and osteoporosis
- To identify if international guidelines are being achieved for reassessment of BMD within two years of treatment commencement in keeping with international guidelines.

Methods: A database of patients with a diagnosis of RA and osteoporosis who attend the Rheumatology department of the Midlands Regional Hospital, Tullamore since January 2013 was reviewed. Outpatient summaries, date of diagnosis, radiology investigations (DEXA scanning), pharmacological treatment and follow up investigations and treatment were documented.
Results: As of August 2016, 770 patients were identified as having RA. 90% of patients had attended the department since 2013. 117 (16.7%) patients were identified as having osteoporosis. Of these, 52.14% of patients were prescribed bisphosphonate therapy, 31.62% denosumab, 9.4% calcium/vitamin D alone, 0.85% other treatment (teriparatide/strontium) and 5.1% were on no treatment. Only 11.9% of these patients had a repeat DEXA scan within two years of starting or changing treatment. 11.1% of patients had repeat DEXA scans booked. The average length of time since a patient's most recent DEXA is 35 months.
Conclusions: Repeat DEXA scanning to assess the response to osteoporosis treatment in people with RA within the timeframe recommended by international guidelines has not been achieved. Patients who fail to respond to osteoporotic treatment are not being identified in a timely manner and therefore are at an increased risk of fractures. The results of this audit will make us more vigilant to identify those patients who are treated for osteoporosis that need repeat DEXA scanning to ensure that treatment is efficacious.
References:
[1] Kanis JA, Johnell O, Oden A, et al. FRAX and the assessment of fracture probability in men and women from the UK. Osteoporos Int 2008; 19:385.
[2] 2013 ISCD Official Postions - Adult http://www.iscd.org/official-positions/2013-iscd-official-positions-adult/ (Accessed on December 02, 2013).
[3] Cosman F1, de Beur SJ, LeBoff MS, et al. Clinician's Guide to Prevention and Treatment of Osteoporosis Osteoporos Int. 2014 Oct;25(10):2359–81.
[4] Watts NB, Bilezikian JP, Camacho PM, Greenspan SL,et al.American Association of Clinical Endocrinologists Medical Guidelines for Clinical Practice for the diagnosis and treatment of postmenopausal osteoporosis. AACE Osteoporosis Task ForceEndocr Pract. 2010 Nov;16 Suppl 3:1–37.
Disclosure of Interest: None declared
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FRI0535 STRONG INFLUENCE OF VITAMIN D STATUS ON BONE MINERAL DENSITY AND BONE TURNOVER MARKERS DURING WEIGHT RESTORATION IN PATIENTS WITH ANOREXIA NERVOSA

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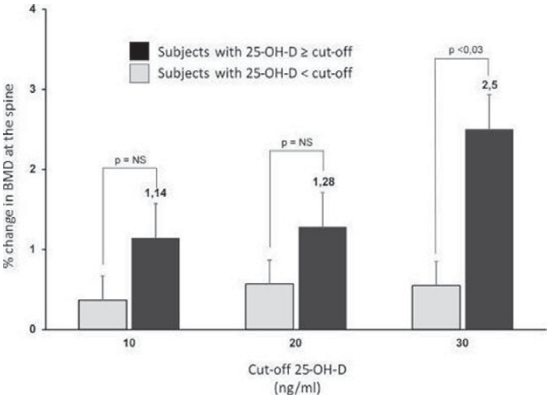
Background: Anoressia nervosa (AN) is associated with an increased risk of low bone mineral density (BMD) and fractures as a consequence of an inadequate bone mass peak in adolescence and bone loss in young adulthood. Moreover, recently we have showed that vitamin D (25-OH-D) deficiency is widespread in untreated patients with AN, and there is a strong positive relationship between vitamin D status and BMD in AN. However, if vitamin D status could affect the efficacy of weight restoration in improving bone health in patients with AN is currently unknown.
Objectives: Our aim was to investigate the potential role of vitamin D status in determining the efficacy on bone mineral density (BMD) of weight restoration in AN.
Methods: Bone mineral density assessed by dual-energy x-ray absorptiometry (DXA), vitamin D, N-propeptide of type I collagen (P1NP), C-terminal telopeptide of type I collagen (CTX), intact parathyroid hormone (PTH) were evaluated before and after a 20-weeks intensive weight restoration therapy in patients with anorexia nervosa and secondary amenorrhoea for at least 6-months. The subjects were not receiving medications known to affect bone metabolism.
Results: Ninety-one female patients aged 13–45 years old were evaluated, baseline weight 39.4±5.6 kg and BMI 15.1±1.6 kg/m^2. Weight and BMI were significantly increased in all patients after treatment. The mean BMD values were significantly increased only at the spine (1.0±3.6%, p=0.009). A positive trend was demonstrated between post-treatment 25-OH-D and BMD changes at the spine (p=0.032). However, only the patients with post-treatment 25-OH-D ≥30 ng/ml showed significantly higher increases in BMD at the spine (2.5% vs 0.5% respectively for 25-OH-D ≥30 ng/ml and 25-OH-D <30 ng/ml, p<0.03; Figure 1). Both P1NP and PTH increased, whereas a significant decrease was found in 25-OH-D and CTX ($p<0.05$). Post-treatment CTX levels were inversely correlated with spine BMD. A positive relationship was found between changes in weight and P1NP (R2 =0.27).



Conclusions: In anorexia nervosa, a hypovitaminosis D status counteracts the efficacy of the weight restoration treatment because of an increase in bone resorption mediated by a secondary hyperparathyroidism. Our study strongly support the use of vitamin D supplements for bone health in anorexia nervosa.
Disclosure of Interest: None declared
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FRI0536 THE METHOD OF CALCULATING THE PROBABLE VALUE OF T-SCORE IN PATIENTS WITH MULTIFOCAL ATHEROCALCIFICATION

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Objectives: To determine probable value of T-score for early detection 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: T-score values of lumbar vertebrae -1.07 [-1.54;-0.40], T-score of the proximal femur -2.01 [-2.71;-1.49]. Calcification of the coronary arteries: CS=471.8 [118.2;916,8] and carotid arteries: CS=113.9 [44.5;300.8]. Factors that affect the