AB0613

FREQUENCY AND RISK OF FRAGILITY FRACTURES IN PATIENTS WITH SYSTEMIC SCLEROSIS

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Background:

Objectives: To assess the frequency of fragility fractures and the 10-year risk of major osteoporotic fractures using the fracture risk assessment tool (FRAX) tool in patients with systemic sclerosis (SSc).

Methods: The study included 136 patients with SSc who met the ACR/EULAR 2013 criteria: 110 (80.9%) postmenopausal women and 26 (19.1%) men over 50 years of age, mean age 59.3±7.5 years. The duration of the disease was 10.0 [6.0; 15.0] years in women and 6.0 [3.5; 9.0] years in men. A questionnaire was conducted and the risk of major osteoporotic fractures was calculated according to FRAX tool, as a result of which patients were divided into groups of low, moderate or high risk. Individuals at moderate risk underwent dual-energy X-ray absorptiometry (DXA) of the proximal femur, followed by a 10-year probability of major osteoporotic fractures recalculation with the inclusion of the femoral neck T-score. According to the obtained fracture risk assessment tool value, patients were assigned as having a low, high or very high risk.

Results: Fragility fractures of various localization were found in 50 (36.7%) people: 41 (37.3%) women and 9 (34.6%) men. Vertebral and peripheral bone fractures occurred with the same frequency (19.8%) without significant differences depending on the patient's gender. Only 1 (3.8%) male had a history of proximal femoral fracture. Fractures of both the vertebra and the peripheral bone occurred in 4 (2.9%) people: 3 (2.7%) women and 1 (3.8%) man.

9 (8.2%) women and 16 (61.5%) men had a low risk of major osteoporotic fractures according to FRAX, 60 (54.5%) and 10 (38.5%) - a moderate risk, respectively, while 41 (37.3%) women were at high risk. Among 86 patients without a history of low-energy fractures (69 women and 17 men), 8 (11.6%) women and 16 (94.1%) men were at low risk of major osteoporotic fractures, and 57 (82.6%) and 1 (5.9%), respectively, were at moderate risk. Only 4 (5.8%) women were assigned to the high-risk group. After recalculation of the fracture risk assessment tool with inclusion of the femoral neck T-score in persons with moderate risk without a history of fragility fractures, 9 (13.0%) women and 1 (5.9%) man were found to be at high risk, 14 (20.3%) women - at very high risk and 34 (49.3%) women - at low risk.

Among moderate-risk patients with prior fractures after FRAX recalculation 3 (7.3%) women and 7 (77.8%) men became at low risk, 1 (11.1%) male - at high and 1 (11.1%) male - at very high risk. Thus, 55 (50.0%) women and 1 (3.8%) man were at very high, 12 (10.9%) and 2 (7.7%), respectively, - at high, and 43 (39.1%) and 23 (88.5%), respectively, - at low risk of major osteoporotic fractures.

Conclusion: In the examined cohort of patients with SSc, the frequency of fragility fractures was 37.3% in women and 34.6% in men. A high and very high risk of major osteoporotic fractures was found in 60.9% of women and 11.5% of men. 3 (2.7%) women and 6 (23.1%) men with a history of previous fractures were in the low-risk group by FRAX, but they need to consider the appointment of anti-osteoporotic therapy as for patients at high and very high risk.

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AB0614

DENSITOMETRIC VERTEBRAL FRACTURE ASSESSMENT: FACTORS LIMITING GOOD VISIBILITY OF THE VERTEBRA

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Background: The radiograph of the spine is the gold standard for identifying vertebral fractures (VF). Vertebral Fracture Assessment (VFA) is a new feature available on modern densitometers that could assess VF. This technique offers the advantage of low irradiation over standard radiography but at the cost of lower image quality.

Objectives: The aim of this study was to assess factors associated with good vertebra visibility when using VFA.

Methods: This is a cross-sectional study including patients referred by their physicians for bone mineral density (BMD) measurement. Anthropometric data were recorded. BMD was measured using standard methods over the lumbar spine L1-L4, the total proximal femur. Results were expressed as T-scores using Dual-energy X-ray absorptiometry (DEXA). The screening for VF was performed by VFA. A professional operator analyses VFA scans and assessed the good visibility of the vertebra.

Results: The study included 100 patients. The mean age was 61.7 ±12.6 years [18-83]. The average body mass index (BMI) was 28.9 ± 24.2 kg/m² [14.2-45.3].

The mean T-score at the vertebral site was -1.5 DS [-4.9-1.5] with a mean mass of 0.95g/cm² [0.58-1.371]. Osteoporosis was found in 27.7 % of patients. A vertebral fracture was diagnosed in 25% of cases. The visualization of the vertebra was impaired in the upper thoracic region in 60% of cases. Poor visibility was observed in 19% of cases in the mid-thoracic spine and only in 2% of cases in the lumbar spine. No statistically significant correlation was found between good vertebral visibility and age (p=0.2), weight (p=0.5), or BMI (p=0.7). However, good visibility of the vertebra was associated with a lower height (1.7 m vs 1.5 m, p=0.03). A better vertebrae visualization was correlated neither to the BMD of the right hip (0.84 vs 0.87, p=0.4) nor to the left hip (0.85 vs 0.89, p= 0.3). Similarly, the absence of vertebral osteoporosis was not correlated with a better vertebral visualization (p=0.6).

Conclusion: Visibility of the vertebra on VFA does not appear to be altered by the BMD and vertebral osteoporosis, suggesting safe use in the elderly. However, precautions may be taken when interpreting VFA in patients with high heights.

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AB0615

ASSESSMENT OF THE IMPACT OF OBESITY ON BONE LOSS

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Background: Most of the available evidence supports a lower risk of vertebral fracture in obese adults. This belief was partially suggested by the positive correlation between bone mineral density (BMD) and body mass index (BMI).

Objectives: We aimed to assess the association of BMI with BMD and to explore their relation with age and gender.

Methods: This is a cross-sectional study including Tunisian patients referred for an assessment of BMD through dual-energy X-ray absorptiometry (DXA). BMD was measured using standard methods over the lumbar spine L1-L4, the total proximal femur. The results were expressed as T-scores according to the World Health Organization definition. Patients were sub-grouped according to age (≤50 and >50 years). Association between BMD and age as well as BMI was also assessed (G1: obese patients and G2: non-obese patients). The level of significance was fixed for p<0.05

Results: The study included 100 patients with a female predominance (sex ratio =10.1). The mean age for women was 61.9 ±13 [18-83] years and the mean age for men was 59.7± 7.5 [47-72] years. The mean body mass index was 29.1± 5 kg/m² [15-45] for women and 27.6 ±3.6 kg/m² [22.8-32.9] for men. Forty percent of all patients were obese with a mean BMI of 32.9 kg/m² ± 4.3. Osteopenia was diagnosed in half of the men (55.5%) and most of the women (70%). Twenty-nine percent of patients suffered from osteoporosis. BMD of the spine was similar between men and women (p=0.53). Men had higher BMD of the hip than women (p=0.038). The mainstream of the subjects >50 years had more vertebral fractures, suffered more from osteoporosis and had a higher BMI than those < 50 years (95% vs 5%; p=0.04), (92.3% vs 77 %; p=0.03) and (82.5% vs 17.5%; p=0.05) respectively. There was no correlation between BMD of the spine and higher BMI (0.94 in G1 vs 0.98 in G2, p=0.3). Similarly, there was no correlation between BMD of the hip and higher BMI (0.9 in G1 vs 0.84 in G2, p=0.2). Moreover, Obese patients had less a vertebral fracture but with no statistically significant correlation (21% in G1 vs 25% in G2; p=0.2).

Conclusion: Our study showed that obesity was frequent among Tunisian patients but was not associated with a higher BMD. Older age was directly associated with a lower BMD and higher risk for vertebral fracture.

Disclosure of Interests: None declared.

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AB0616

RISK FACTORS FOR PREVALENT VERTEBRAL FRAGILITY FRACTURES - STUDY IN A LONDON URBAN BOROUGH

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Background: Vertebral fragility fractures (VFFs) are commonly underdiagnosed, often resulting in chronic pain and reduced quality of life. It is particularly important to identify and manage VFFs, as they are important predictors of future VFFs and non-VFFs. Patients with VFFs often have multiple risk factors, which are important to identify to formulate a tailored and appropriate management plan. There is a paucity of studies that have investigated risk factors specifically for VFFs.

Objectives: To identify the prevalence of osteoporosis risk factors in patients with VFFs.

Methods: Retrospective review of patients seen between July 2018 and July 2019 at Purley Memorial Hospital, covering a large urban borough. Patients included in the study had prevalent moderate and severe VFFs (defined by Ghent criteria).

Results: 84 patients were included, of which there were 71 females and 13 males. Median age was 76 (IQR 67 – 82) and BMI was 25 (IQR 21 – 27), with 6% of patients noted to be underweight (BMI <18.5). 38% of patients had a family history of osteoporosis and 21% of patients reported a history of parental hip fracture. 21% of patients had experienced recurrent falls. Over half (56%) of patients were noted to have had 2-or-more previous fragility fractures. Of the female cohort, 24% had early menopause, 13% were nulliparous and 1% had late menarche. Of the modifiable risk factors, alcohol (24%), sedentary lifestyle (21%) and smoking (13%) were the most common. Thyroid-disease (18%) was the most common medical condition associated, followed by coeliac/malabsorption (7%), endocrinopathy (6%) and COPD (6%). Proton Pump Inhibitors (PPIs) and steroids were the most common medications associated with 16% and 14% of cases respectively. 73% of patients had good calcium intake and 62% had calcium supplements. Overall, 27 patients had 3-or-fewer risk factors, 35 patients had 4-to-6 risk factors, 19 had 7-to-9 risk factors, and 3 had greater than 10 risk factors.

Conclusion: Our study identified several risk factors and their prevalence. The majority of patients were female, of which 24% had early menopause. Several modifiable risk factors such as low BMI, alcohol, smoking and sedentary lifestyle were commonly seen, emphasising the need to identify these risk factors in the initial consultation. Over half of patients (56%) had had 2-or-more previous non-VFFs, suggesting the need to screen for VFFs in patients with multiple fragility fractures at baseline assessment. A number of co-existing medical conditions were also observed with thyroid disease being the most prevalent. PPIs and steroids were found to be important risk factors, which may lead to the consideration of alternative medications. Overall, it was found that patients had multiple risk factors, thus it is important to have a holistic assessment of VFF patients and a multi-system management approach to prevent future fractures.

Disclosure of Interests: None declared.

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AB0617

BISPHOSPHONATES DANS L'OSTÉOPOROSE ET LE RISQUE D'OSTÉONÉCROSE DE LA MÂCHOIRE, ENVIRON 896 CAS

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Background: Bisphosphonates (BF) are used in the treatment of osteoporosis, Paget's disease of bone, hypercalcemia and in patients with cancer. When used to treat osteoporosis, the optimal duration of treatment is 3 to 5 years; however, their long-term use has been rarely associated with osteonecrosis of the jaw.

Objectives: To assess the risk of developing osteonecrosis of the jaw in patients followed for osteoporosis and on bisphosphonates (BP).

Methods: Type of study: retrospective study conducted at the rheumatology department of the IBN ROCHD CHU in Casablanca.

Duration: from October 2013 to October 2020 (7 years).

Inclusion criteria: all patients followed for osteoporosis in the weakening osteopathies unit of the bone and treated with oral or intravenous bisphosphonates. Exclusion criteria: patients followed for other than osteoporosis.

Results: 896 patients were treated during this period. The average age was 62.74 years (28 to 90 years), of which 85.16% were women and 14.84% were men, for a sex ratio (F / M) of 5.74. As a history, 18.75% of patients are diabetic, 26.56% followed for breast neoplasm, 14.06% of patients had received long-term corticosteroid therapy for various pathologies such as chronic inflammatory rheumatism. Osteoporosis was postmenopausal in 687 patients, ie 76.67% of cases, 14.06% after long-term corticosteroid therapy, 8.15% following hormone therapy (anti-aromatases) and 6.92% following chemotherapy; note that 18.16% of these patients were found in at least two of the situations. The mean bone mineral density (BMD), T-score pair considered in all [T-score (BMD)] is -3 (0.736) in the lumbar spine (L1-L4), -2.9 (0.658) at the femoral neck, -2.6 (0.804) at the total hip before the start of treatment. 69.97% of the patients were put on Alendronic acid, 12.50% on Residronic acid, 10.93% on Zolidronic acid, 3.46% on Pamidronic acid and 3.14% received Strontium Ranelate, note that before the start of the treatment all the patients benefited from a dental consultation followed by care of any lesions, the bisphosphonates were only introduced after having ruled out all their dental contraindications, the average duration of treatment for all the molecules was 4.71 years (2 to 5 years) and no patient developed osteonecrosis of the jaw. The change in control BMD on average after 2 years of treatment was -2.7 (0.782) at the lumbar spine, -2.6 (0.749) at the femoral neck and -2.4 (0.713) at the hip total, after 5 years -2.4 (0.874) at the spine, -2.1 (0.809) at the femoral neck and -1.93 (861) at the total hip.

Conclusion: The occurrence of ONJ in the treatment of osteoporosis with the use of BFs is rare, and appears to be unpredictable; but maintaining therapeutic

caution, consisting in diagnosing and treating any dental lesions before starting treatment, can considerably reduce or even cancel the risk of occurrence; especially in patients treated with long-term intravenous pamidronate.

REFERENCES:

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AB0618

GLUCOCORTICOID INDUCED OSTEOPOROSIS PREVENTION IN THE OUTPATIENT RHEUMATOLOGY CLINIC

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Background: Patients with rheumatic disease are at risk of developing glucocorticoid induced osteoporosis (GIOP) as many are prescribed systemic oral glucocorticoids as an adjunct to their maintenance therapy. Based on the 2017 ACR Guideline for the Prevention and Treatment of Glucocorticoid-Induced Osteoporosis, a good practice recommendation exists that "initial clinical fracture risk assessment should be performed as soon as possible, but at least within six months of the initiation of long term glucocorticoid treatment."¹ Long-term glucocorticoid use is defined by duration of 3 months or greater. Fracture risk assessment should include dual energy-ray absorptiometry (DEXA) scan. Patients on greater than or equal to 2.5mg of prednisone should be treated with an optimal dose of calcium and vitamin D and may benefit from oral bisphosphonate as primary prevention against GIOP if their fracture risk is moderate to high.¹

Objectives: The aim of this Quality Improvement Project is to assess the current status of provider implementation of GIOP recommendations in the rheumatology clinic. Ultimate goal is to improve osteoporosis prevention in the rheumatology clinic.

Methods: We conducted a retrospective chart review of 60 patients in two outpatient rheumatology clinics. Clinic 1 follows patients with lower socioeconomic status and Clinic 2 follows patients with higher socioeconomic status. Inclusion criteria were patients on long-term glucocorticoid use, defined as at least 3 months of corticosteroid use of at least 2.5mg prednisone daily, as well as age less than 65. Females aged 65 or older were omitted to prevent overlap of the United States Preventative Taskforce recommendation for all women ≥ 65 years to be screened for osteoporosis with DEXA scans.² DEXA scan orders, calcium and vitamin D prescriptions, and osteoporosis medication prescriptions were abstracted. After baseline data obtained, intervention of education of the rheumatology fellows and faculty, and internal medicine residents in the guidelines for GIOP prevention was implemented. In addition, a smartphrase in the electronic medical record was created for provider use when treating patients on chronic corticosteroids. Subsequently, two audit cycles were completed for retrospective chart review.

Results: Upon completion of second audit cycle, there was no change in percentage of DEXA scan orders at Clinic 1, however there was a 10% overall improvement in DEXA scan orders in the Clinic 2.

In terms of Calcium and Vitamin D prescriptions, there was an overall improvement in both clinics of 19.7% and 13.3% in Clinics 1 and 2 respectively after the second audit cycle.

Additionally, there was a 3.4% increase in osteoporosis medication prescriptions overall subsequent to the second audit cycle in Clinic 1. However in Clinic 2 there was an overall decrease in osteoporosis medication prescriptions of 6.6%.

Clinic 1	Prior to Audit	Audit cycle 1	Audit cycle 2
Patient percentage without DEXA scan orders	30%	33.30%	30%
Patient percentage without Vitamin D/Calcium orders	26.40%	8.30%	6.70%
Patient percentage with osteoporosis medication orders	23.30%	8.30%	26.70%
Clinic 2			
Patient percentage without DEXA scan orders	50%	37.00%	40%
Patient percentage without Vitamin D/Calcium orders	30%	26.00%	16.70%
Patient percentage with osteoporosis medication orders	23.30%	11.10%	16.70%

Conclusion: Overall, the results of the intervention were strongest for improvements in Vitamin D and Calcium orders in both clinics. Improvements in DEXA scan orders and osteoporosis medications were present in Clinic 2 and not present in Clinic 1. This reveals continued efforts and education of providers need to be made for improvement in bone health monitoring.

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