Conclusion: Women with scoliosis showed significantly higher fracture risk for major osteoporotic fractures and for hip fractures compared to those without scoliosis.

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SAT0474 WHAT DETERMINES THE EFFECT OF THERAPY WITH DENOSUMAB ON BONE IN WOMEN WITH RHEUMATOID ARTHRITIS AND OSTEOPOROSIS

P. Kovalenko¹, I. Dydykina¹, A. Smirnov¹, E. Nasonov¹, ¹V.A. Nasonova Research Institute of Rheumatology, Moscow, Russian Federation

Background: RANK-ligand is essential for osteoclast development, activation, and survival and it is a key mediator of increased osteoclast activity in rheumatoid arthritis (RA). Denosumab is a monoclonal antibody that binds RANK-ligand.

Objectives: The aim of this study was to evaluate the effects of denosumab on bone mineral density (BMD) and to define a contribution of factors: anamnesis, clinical/laboratory markers, glucocorticoids (GC) intake, etc. on the response to therapy with denosumab in women with RA and osteoporosis (OP).

Methods: 66 postmenopausal women (mean age 59.6±7.4) with RA (mean duration 17.7±10.4 years) and OP received s/c denosumab 60 mg every 6 months pro 12 months. RF-positive were 72%, ACCP – 74% of patients. 34 (49%) patients continued GC. At baseline and after 12 months it was carried out the dual energy x-ray absorptiometry at 3 sites: lumbar spine (L1-L4), hip neck (HN) and distal forearm (DF) and x-ray of hands and feet (Sharp/van der Heijde (SVH) score). The Statistica 6.0 was used.

Results: After therapy it was noted the increase ($p < 0,05$) of BMD in L1-L4 and HN, a tendency to increase ($p = 0,0529$) in DF. Mean BMD (L1-L4) before/after the treatment was $0,821 \pm 0,104 \text{ g/cm}^2$ vs $0,864 \pm 0,110 \text{ g/cm}^2$, at HN was $0,625 \pm 0,089 \text{ g/cm}^2$ vs $0,639 \pm 0,088 \text{ g/cm}^2$, at DF was $0,498 \pm 0,090 \text{ g/cm}^2$ vs $0,503 \pm 0,089 \text{ g/cm}^2$. The mean change of BMD (%) after 12 months at L1-L4 was +4,6%, at HN +2,8%, at DF +0,7%. Positive response (increase or stabilization of BMD) was noted in 89% patients at L1-L4, 67% - at HN and 60% - at DF. Analysis of influence of various factors (statistically significant) on the response to therapy is presented in the Table.

Conclusion: After 12 months of therapy with denosumab in postmenopausal women with RA and OP it was shown the significant increase of BMD in L1-L4

Table. Influence of various factors on the response to therapy with denosumab after 12 months of treatment (n=66)

DXA site	Positive response on therapy is associated with	Negative response on therapy is associated with
L1-L4	–	– GC intake (> 3 months in anamnesis) ($p = 0,034$); – the beginning of GC intake after menopause ($p = 0,023$)
Hip neck	– higher concentration of the RF (initially and in dynamics) ($p < 0,05$); – the beginning of menopause later than RA onset ($p = 0,024$)	– GC intake (> 3 months in anamnesis) ($p = 0,024$)
Forearm (distal 1/3)	– RF-positivity ($p = 0,02$)	– back correlates with increase in erosion score and total SVH score: $r = -0,360$ ($p < 0,05$)

and HN, a tendency to increase in DF. The mean change of BMD (%) after 12 months was +4,6% at L1-L4, at HN +2,8%, at DF +0,7%. Positive response on denosumab (BMD) was noted in 89% patients at L1-L4, 67% - at HN and 60% - at DF. Analysis of influence of factors on the response to therapy showed that positive response on therapy in HN and DF was associated with RF-positivity. The distinct contribution to the negative response in L1-L4 and HN was associated with GC intake (previous intake more than 3 months in the anamnesis) and purpose of the GC after menopause onset. Also, negative response in DF back correlated with increase in erosion score and total SVH score.

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SAT0475 DENOSUMAB VERSUS ORAL BISPHOSPHONATE FOR OSTEOPOROSIS IN LONG-TERM GLUCOCORTICOID USERS: A 12-MONTH RANDOMIZED CONTROLLED TRIAL

C. C. Mok¹, L. Y. Ho¹, K. L. Chan¹, S. M. Tse¹ on behalf of N/A. ¹Tuen Mun Hospital, Medicine, Hong Kong, Hong Kong (SAR)

Background:

Objectives: To compare the efficacy of denosumab (DEN) and oral alendronate (ALN) on spinal bone mineral density (BMD) in long-term glucocorticoid users.

Methods: Patients receiving long-term prednisolone treatment for medical illnesses were recruited. Inclusion criteria: (1) adult patients ≥ 18 years of age; (2) prednisolone $\geq 2.5 \text{ mg/day}$ for ≥ 1 year. Exclusion criteria: (1) previous use of DEN, teriparatide; (2) plan for pregnancy; (3) metabolic bone disease or unexplained hypocalcemia; (4) renal insufficiency. Participants were randomized to receive either: (1) DEN (60mg subcutaneously every 6 months); or (2) ALN (70mg/week). Calcium (Caltrate 3000mg/day) and vitamin D3 (cholecalciferol 1000IU/day) was given. BMD (femoral neck, total hip, lumbar spine) at month 0, 6 and 12 months were performed. Markers of bone turnover (serum P1NP and CTX) were also assayed at the same time points. The primary outcome was the difference of lumbar spine BMD change at month 12 between the two groups.

Results: 139 subjects were recruited (age 50.0 ± 12.7 years): 69 assigned DEN and 70 assigned ALN. Underlying medical diseases: SLE (81%), RA (9.4%) and myositis (5%). Prednisolone dose at entry was $5.7 \pm 2.1 \text{ mg/day}$. 56% of female patients were postmenopausal. 73(53%) of patients were osteoporotic (T score < -2.5) at the hip, femoral neck or lumbar spine. The mean body mass index (BMI) was $23.1 \pm 4.1 \text{ kg/m}^2$ (11% patients had $\text{BMI} < 18 \text{ kg/m}^2$). 82(59%) patients were naive to bisphosphonates. Pre-existing fragility or vertebral fracture was present in 19 (14%) patients and 18 patients (13%) had a family history of fractures. Baseline demographic data, osteoporotic risk factors, and BMD at various sites were not significantly different between the two groups at entry. At month 12, a significant gain in BMD at the lumbar spine ($+3.5 \pm 2.5\%$; $p < 0.001$) and the hip ($+0.9 \pm 2.8\%$; $p = 0.01$) was observed in DEN-treated patients, whereas the corresponding change was $+2.5 \pm 2.9\%$ ($p < 0.001$) and $+1.6 \pm 2.7\%$ ($p < 0.001$) in the ALN group. The spinal BMD at month 12 was significantly higher in the DEN than ALN group after adjustment for BMD values at baseline, age, sex and other osteoporosis risk factors that included smoking, drinking, cumulative steroid doses in one year, BMI, menopausal status and personal history of fracture ($p = 0.045$). The differences in hip and femoral neck BMD were not significantly different between the two groups after adjustment for the same confounding factors. No new symptomatic fractures occurred in any participants at month 12. Adverse events were similar in frequency between the two treatment arms. Major infective episodes were uncommon (0.06/patient/year) and similar in the two groups. Minor upper gastrointestinal symptoms and non-specific dizziness were numerically more common in the ALN but arthralgia, minor infections (eg. upper respiratory tract) and new hypertension was more commonly reported in the DEN group. Three patients from ALN and 2 patients from DEN group were withdrawn from the study because of non-compliance but none withdrew because of adverse events.

Conclusion: In patients receiving long-term glucocorticoids, DEN is superior to ALN in raising the spinal BMD after 12 months' treatment. Both DEN and ALN were well tolerated.

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SAT0476 COMPLIANCE AND PERSISTENCE OF ANTI-OSTEOPOROTIC TREATMENTS IN PATIENTS WITH HIP FRACTURE

S. Paredes¹, M. Guinovart², A. Basco², C. Llop². ¹Hospital Universitari Sant Joan de Reus, Department of Rheumatology, Reus, Spain; ²CatSalut, Pharmacy Unit, Tarragona, Spain

Background: Osteoporotic fractures have a high health and economic impact. The best strategy to minimize the incidence of fractures is, certainly, the prevention of these that includes pharmacological treatments. However, long-term discontinuation treatment and sub-optimal compliance of the treatment are common.

Objectives: The aim of the study is to quantify the therapeutic compliance and permanence of the osteoporosis pharmacological treatments for patients who were discharged from hospitals in Catalonia with hip fracture during 2017.

Methods: From the Hospital Discharge Database of the Catalan Health Service, all patients who had been discharged during 2017 were selected with the main diagnosis of femur fracture, according to the coding CIM-9. The consumption of drugs to assess compliance and permanence was obtained from the Catalan Health Service pharmacy Database. The study period was 18 months from the date of hospital discharge. Patients who died, moved to other areas or switched their treatment were excluded from the study. Good compliance was considered when sufficient drug was obtained to cover 80% of the time since treatment was prescribed until the end of the study period. In the case of denosumab, good post-fracture compliance was considered when the treatment time was remained at least 12 months. Permanence was considered positive if a drug had been obtained during the last three months of the study period. To compare the differences in compliance and permanence between the patients treated with different drugs, the chi-square statistic was used, considering statistically significant differences if $p < 0.05$.

Results: 8,354 patients were discharged with the main diagnosis of hip fracture. Of these, 1,712 patients (20.49%) were treated after been discharged. After applying the exclusion criteria, the final sample was made up of 1,327 patients. 81.54% were women, and the median age was 84.79 years.

The most commonly used treatments were bisphosphonates (69%), denosumab (23%) and teriparatide (7%).

The results of good compliance and permanence of treatment were those described in the table.

	n	Compliance	Permanence
Alendronate	863	63.27%	64.77%
Alendronate+colecalciferol	27	74.07%	81.48%
Ibandronate	3	66.67%	100%
Risedronate	23	39.13%	60.87%
Raloxifene	1	100%	100%
Bazedoxifene	1	0%	0%
Teriparatide	99	76.77% (*)	73.74%
Denosumab	310	76.77% (*)	74.52% (*)

(*) $p < 0.05$ for total bisphosphonates and for alendronate

Conclusion: The results obtained suggest that a small number of patients were treated after a hip fracture (20.49%) in addition the instituted treatments are followed in a suboptimal way. It is necessary to investigate which factors may lead to the detection of potential non-compliant patients. It seems appropriate to consider drugs that facilitate compliance and permanence of treatment.

Our results suggest that denosumab and teriparatide improve compliance compared with oral bisphosphonates.

The introduction of specific plans and cross-sectional health structures between levels of care should lead to improve detection, treatment and compliance in patients with osteoporosis.

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SAT0477

A TWO-YEAR LONGITUDINAL STUDY COMPLETION, LONGITUNEAL STUDY, THE DIFFERENCE IN BONE LOSS IN PATIENTS WITH EROSIIVE AND NON-EROSIVE HAND OSTEOARTHRITIS

K. Pavelka¹, L. Šenolt², O. Sleglova², J. Baloun¹, O. Růžicková² on behalf of Institute of Research in Revmatology, ¹Institute of Research in Revmatology, 1st Faculty of Medicine, Charles University, Revmatology, Prague 2, Czech Republic; ²Institute of Research in Revmatology, 1st Faculty of Medicine, Charles University, Revmatology, Prague 2, Czech Republic

Background: Hand osteoarthritis (OA) and its more severe subset erosive hand OA are common causes of pain and morbidity. Some metabolic factors were suggested to be implicated in erosive disease. Few studies investigated differences in systemic bone loss between erosive and non-erosive hand OA.

Objectives: To compare the change of bone mineral density (BMD) between patients with erosive and non-erosive hand OA in a two-year longitudinal study.

Methods: Consecutive patients with symptomatic HOA fulfilling the American College of Rheumatology (ACR) criteria were included in this study. Erosive hand

OA was defined by at least one erosive interphalangeal joint. All patients underwent clinical assessments of joint swelling and radiographs of both hands. DEXA examination of lumbar spine, total femur and femur neck was performed at the baseline and after two years.

Results: Altogether, 141 patients (15 male) with symptomatic nodal HOA were included in this study and followed between April 2012 and January 2019. Out of these patients, 80 had erosive disease after two years. The disease duration ($p < 0.01$) was significantly higher in patients with erosive compared with non-erosive disease at baseline.

Osteoporosis (T-score < -2.5 SD) was diagnosed in 12.5% (9/72) of patients with erosive hand OA and in 8.06% (5/57) of patients with non-erosive hand OA at baseline. BMD was significantly lowered in patients with erosive compared with non-erosive disease at baseline (lumbar spine: 1.05g/cm² vs. 1.13g/cm², $p < 0.05$, total femur: 0.90g/cm² vs. 0.97g/cm², $p < 0.01$ and femur neck: 0.86g/cm² vs. 0.91, $p < 0.05$). T-scores of lumbar spine (-0.96 vs. -0.41 SD, $p < 0.05$), total femur (-0.69 vs. -0.33 SD, $p < 0.05$) and femur neck (-1.14 vs. -0.88 SD, $p < 0.05$) were also significantly lowered in patients with erosive compared with non-erosive disease.

Two years, the BMD remained also significantly lowered in patients with erosive compared with non-erosive disease (lumbar spine: 1.05g/cm² vs. 1.14g/cm², $p < 0.05$, total femur: 0.92g/cm² vs. 0.97g/cm², $p < 0.05$ and femur neck: 0.86g/cm² vs. 0.91, $p < 0.05$), which was in agreement with the finding for T-scores of lumbar spine (-1.05 vs. -0.39 SD, $p < 0.05$), total femur (-0.74 vs. -0.34 SD, $p < 0.01$) and femur neck (-1.07 vs. -0.72 SD, $p < 0.01$).

Conclusion: These results suggest that patients with erosive hand OA are at higher risk for the development of general bone loss. Over two years patients with erosive disease had significant lower bone mineral density at all measured sites.

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SAT0478

OSTEOPOROSIS TREATMENT IN PORTUGUESE PATIENTS WITH PSORIATIC ARTHRITIS – WHAT IS THE VALUE OF THE FRACTURE RISK ASSESSMENT TOOL (FRAX)?

E. Pinheiro¹, M. Rato¹, B. M. Fernandes¹, S. Garcia¹, S. Ganhão¹, P. Madureira¹, M. Bernardes¹, L. Costa¹. ¹Centro Hospitalar e Universitário de São João, Rheumatology Department, Porto, Portugal

Background: Few studies have evaluated the prevalence and treatment of osteoporosis (OP) in patients with psoriatic arthritis (PsA), and many of these patients are not screened using dual-energy X-ray absorptiometry (DXA). FRAX makes it possible to stratify the risk and define which patients may benefit from anti-osteoporotic treatment, but its usefulness in this population is not well established.

Objectives: The aim of this study was to determine whether the application of FRAX changes the indication for anti-osteoporotic treatment in PsA patients, according to the Portuguese guidelines.

Methods: In this cross-sectional study, we evaluated PsA patients from a tertiary hospital, registered in a national database (Reuma.pt), aged between 40 and 90 years and with a last consultation in 2019. FRAX was applied in all of them, regardless of being under anti-osteoporotic treatment and, when DXA was available, the femoral neck bone mineral density was used. Patients were stratified according to the risk of fracture, and those at high risk were considered candidates for anti-osteoporotic treatment, according to national guidelines [FRAX $\geq 11\%$ for major osteoporotic fracture (MOF) or $\geq 3\%$ for hip fracture (HF) without DXA; FRAX $\geq 9\%$ for MOF or $\geq 2.5\%$ for HF, with DXA].

Results: We included 100 patients, 52 females, with a mean age of 54.4 $\pm$ 8.9 years and a median disease duration of 10 (6-17) years. Only 43 had already performed DXA and 6 had OP according to World Health Organization criteria. Seven patients were identified as having a high risk of fracture; applying femoral neck bone mineral density, 2 more patients with indication for treatment were recognized, totaling 9 patients. There was a low agreement between the indication for treatment based only on DXA and FRAX (Cohen's κ 0.066). There was a moderate and significant correlation between percentage of risk of MOF by FRAX with and without DXA (Spearman's ρ 0.804, $p < 0.001$); for the risk of HF by FRAX with and without DXA the correlation was weaker but still significant (Spearman's ρ 0.439, $p = 0.004$). There was no association between the indication for treatment by FRAX and the performance of DXA (chi-square test,