[51–81 and 56.07±9.72 [40–76] in the control group. The mean bone mineral density (BMD) in vertebral site was 0.856±0.090g/cm² and 1.216±0.185g/cm² in control group. In femoral site, it was 0.877±0.221g/cm² and 1.061±0.142g/cm² respectively. The mean T-score in vertebral site was -2.387±0.814 DS in osteoporosis/osteopenia group and 0.643±1.587 DS in control group. In femoral site, it was -1.577±0.970 DS and 0.213±1.162 respectively. The oral examination showed an excessive tooth mobility in 60% and 36.7% of controls without a significant difference, a gingival recession in 50% and 30% of controls, the presence of periodontal pockets in 23.3% and 16.7% of controls without a significant difference, a plaque index ≥2 in 53.3% of osteoporosis/osteopenia patients and 63.3% of controls and a non rectilinear trajectory of mouth opening in 13.3% and 3.3% of controls.

Conclusions: Our study showed that patients with osteoporosis or osteopenia have a poor oral hygiene, but without significant difference with control group. However, patients who were diagnosed as osteoporosis must pay more attention to their periodontal health. Good oral hygiene maintenance might be a crucial factor for preventing the deterioration of osteoporosis progressing.

References:

- [1] Yi-Fang Huang et al, The Impact of Oral Hygiene Maintenance on the Association Between Periodontitis and Osteoporosis; *Medicine*; Volume 95, Number 6, February 2016.
- [2] Reddy MS. Osteoporosis and periodontitis: discussion, conclusions, and recommendations. *Ann Periodontol*. 2001;6:214–217.

Disclosure of Interest: None declared

DOI: 10.1136/annrheumdis-2017-eular.5184

AB0850 **HELICOBACTER PYLORI INFECTION AND OSTEOPOROSIS IN POST MENOPAUSAL WOMEN**

N. Abdolahi, M. Aghaei, M. Naghdi. *Golestan Rheumatology Research Center, Golestan University of Medical Sciences, Gorgan, Iran, Islamic Republic Of*

Background: Osteoporosis is a health problem that if is left untreated, can lead to serious health & economical complications. It is also very common in postmenopausal women. Mineral deficiency, smoking, low BMI, some certain diseases and some medications can also cause osteoporosis. H. Pylori infection can also increase levels of inflammatory cytokines and bone turn over regulatory cytokines, as a result, it is likely that H. pylori infected patients are at increased risk for osteoporosis.

Objectives: the present study was done to understanding the association between H. Pylori seropositivity and osteoporosis in postmenopausal women.

Methods: The study population consisted of 34 osteoporotic patients and 73 healthy controls. Serum levels of h.pylori antibody (IgA, IgG) were measured by ELISA method.

Results: There was no difference in levels of IgA and IgG h.pylori antibody between patients and healthy controls

IgA seropositivity was 70.6% in osteoporotic women and 54.8% in healthy women (p value: 0.1). Also H. pylori IgG seropositivity was 82% in osteoporotic women and 75.3% in healthy women (p value: 0.4). We did not find any correlation between H. pylori seropositivity and bone mineral density in post menopausal women.

Conclusions: In this study, we found that Helicobacter pylori infection does not increase the osteoporotic chance and is not a reliable risk factor for osteoporosis. greater sample size, gastric biopsy to detect atrophic gastritis, bone turn over factors and Cag detection is recommended in order to achieve more accurate results

References:

- [1] Shih-Chun Lin, Malcolm Koo, and Kun-Wei Tsai. Association between Helicobacter pylori Infection and Risk of Osteoporosis in Elderly Taiwanese Women with Upper Gastrointestinal Diseases: A Retrospective Patient Record Review. *Gastroenterology Research and Practice*, 2014;2014:814756.
- [2] Kakehasi A.M, Mendes C.M.C, Coelho L.G.V, et al "The presence of Helicobacter pylori in postmenopausal women is not a factor to the decrease of bone mineral density," *Arquivos de Gastroenterologia*, vol. 44, no. 3, pp. 2007;266–270.
- [3] Figura N, Gennari L, Merlotti et al., "Prevalence of Helicobacter pylori infection in male patients with osteoporosis and controls," *Digestive Diseases and Sciences*, vol. 50, no. 5, pp. 2005, 847–852.
- [4] Asaoka D, Nagahara A, Hojo M, Sasaki H, Shimada Y, Yoshizawa T, Osada T, Watanabe S. The Relationship between H. pylori Infection and Osteoporosis in Japan. *Gastroenterol Res Pract*. 2014;2014:340765.

Disclosure of Interest: None declared

DOI: 10.1136/annrheumdis-2017-eular.6445

AB0851 **ZOLEDRONATE AUDIT – ARE WE MEETING EUROPEAN GUIDELINES?**

N. Begum¹, A. Khan¹, A. Nandagudi². ¹*Rheumatology/General Medicine;* ²*Rheumatology, Basildon & Thurrock NHS Foundation Trust, Basildon, United Kingdom*

Background: Zoledronate is recommended by European guidelines for the treatment of osteoporosis particularly where first-line oral drugs are ineffective

or contraindicated. EULAR's guidelines are complimented by UK organisations including the National Institute of Health and Care Excellence (NICE), National Osteoporosis Guidelines Group (NOGG), British Society of Rheumatology (BSR) and the National Osteoporosis Society (NOS).

Objectives: The aim of our audit was to ascertain whether our use of zoledronate was compliant with current guidelines and review the real life experience.

Methods: We performed a retrospective audit of fifty patients who were commenced on zoledronate for the treatment of osteoporosis during 2012–2016 in our Trust. Data gathered included the reasons for commencement, whether patients had appropriate monitoring and the effect it had on DEXA and FRAX scores.

Results: The age ranged from 44–88 years; 67% were between 60–80 years with 80% females. Vertebral fragility fractures were the most common type of fracture (42%). Zoledronate was commenced primarily because of either intolerance or inefficacy to oral anti-osteoporotic treatment (Table 1). It was commenced as first line in 20% because of contraindications to oral drugs. Almost 70% of our patients received zoledronate for two or three years. There was an improvement by 43% and 38% in the DEXA t-score for the spine and hip respectively. Stable t-scores were recorded for the spine and hip in 49% and 54% respectively, whereas 8% deteriorated. Three patients sustained a fragility fracture and a further 11 experienced side effects (Table 2); five patients consequently stopped treatment. Only 3% had recorded FRAX scores pre- or post-zoledronate treatment. All of our patients had their calcium and renal function measured before each zoledronate infusion whilst over 80% had their vitamin D checked. All of our patients had dental checks prior to treatment. Following post-treatment DEXA scans 46% continued zoledronate and 16% were on a drug-free holiday. A third were switched to denosumab due to ineffectiveness, side effects or contraindications.

Table 1. Rationale for Zoledronate Commencement

Rationale	Number	%
Intolerance	24	38%
GI Contraindication	11	17%
Inefficacy	24	38%
Other Contraindication	4	7%

Table 2. Side Effects of Zoledronate

Side Effect	Number	%
Bony Pain	1	9%
Flu-Like Symptoms	5	46%
Aches	1	9%
Acid-Reflux	1	9%
Rash	1	9%
Other	2	18%

Conclusions: The majority of our patients had improvements or stability in bone mineral density T-scores with only 20% experiencing side effects. Our results show that the vast majority of our patients are treated with zoledronate in concordance with guidelines. Nonetheless we can make improvements in recording FRAX scores and monitoring vitamin D levels. This has been highlighted to the multidisciplinary osteoporosis team and changes have been instigated. We plan to re-audit in due course.

References:

- [1] Kanis JA, McCloskey EV, Johansson H, Cooper C, Rizzoli R, Reginster JY. European guidance for the diagnosis and management of osteoporosis in postmenopausal women. *J. ESCEO & IOF. Osteoporos Int*. 2013; 24: 23–57.
- [2] Osteoporosis: Clinical guideline for prevention and treatment. NOGG. 2013.

Disclosure of Interest: None declared

DOI: 10.1136/annrheumdis-2017-eular.5015

AB0852 **INCREASED INFECTION RATE WITH CONCOMITANT RANK LIGAND INHIBITOR DENOSUMAB AND BIOLOGIC THERAPIES FOR RHEUMATIC DISEASES: REALITY OR ILLUSION? EXPERIENCE WITH 40 PATIENTS OVER 66 MONTHS AT THE UNIVERSITY OF SOUTHERN CALIFORNIA**

P.S. Chhibar, G. Ehresmann. *Rheumatology, University of Southern California, Los Angeles, United States*

Background: Patients with autoimmune diseases are at increased risk of early onset osteoporosis due to multiple reasons including prolonged exposure to corticosteroids and the disease process itself in RA patients. Same patients are more likely to be on TNF inhibitors or other biologics, which causes them to be at an increased risk of infections. Denosumab, an anti-RANK ligand inhibitor, itself a biologic, used to treat osteoporosis, is associated with increased infection risk as Receptor activator of nuclear factor kappa B ligand (RANKL) is also expressed on activated T and B lymphocytes (1). It is unknown if there is an added risk of infections when TNF inhibitors/biologic agents and denosumab are used concomitantly.

Objectives: To determine if denosumab and biologics are associated with increased infection risk.

Methods: Data was collected and analyzed on 40 patients in the rheumatology clinic who had been on denosumab and TNF inhibitor/ other biologic for 66 months at the Keck Medical Center of USC.

Results: Patient characteristics: Mean age: 70±9.8 SD years, Gender: 98% were females, 2% Males. 75% had RA, 10% SLE, 15% had other rheumatic diseases. 70% on TNF inhibitors, 30% on other biologics. Before Denosumab (over 2 years): cumulative infection rate 17.5%, which is 8.75 cases per 100 person-years. 9% hospitalization rate. Post Denosumab: After 12 months: No infections within the first year. After 60 months: incidence rate of infections=12.5 cases/100 person-years. After 66 months, incidence rate of infections=15.9 cases/100 person-years. Urinary tract infection (UTI) accounted for the most common infection (17.5%). No opportunistic infections, and no reactivation of latent TB found in our patients. **Conclusions:** No infections developed within the first year, suggesting a cumulative effect of increased infection risk, if any. We cannot attribute the overall infection rate solely to the combination of denosumab and biologics as patients who developed infections either had Diabetes Mellitus, urinary incontinence, recent surgery, underlying pulmonary disease. Patients did not develop infections beyond what would be expected for their comorbidities and medications. Whether prophylactic antibiotics are indicated in patients with recurrent infections PRIOR to denosumab is uncertain, but may be a consideration in certain patients.

References:

- [1] Cummings SR, San Martin J, et al. Denosumab for prevention of fractures in postmenopausal women with osteoporosis. *N Engl J Med*. 2009;361:756–765. doi: 10.1056/NEJMoa0809493.

Disclosure of Interest: None declared

DOI: 10.1136/annrheumdis-2017-eular.1140

AB0853 DENOSUMAB: CLINICAL PERSPECTIVE AND DRUG SURVIVAL IN A SECONDARY CARE SET UP IN UK

R. Laxminarayan, U. Dissanayake, N. Sayed, K. Narangoda. *Rheumatology, Queen's Hospital, Burton on Trent, United Kingdom*

Background: Denosumab has become a useful parental therapy for the treatment of osteoporosis. FREEDOM extension study has shown safety and effectiveness of denosumab beyond 8 years. Real life data on the efficacy and safety of denosumab is lacking. There are no studies looking at the drug survival in the osteoporosis population either. Observational data from clinical practice can provide unique clinical perspective for novel therapies like denosumab.

Objectives: 1. To look at the baseline characters of patients receiving denosumab in a secondary care unit in UK.

2. To study the drug survival rate, analyse the reasons for discontinuation of therapy.

3. To assess fractures during the course of denosumab therapy.

Methods: We looked at the case records retrospectively of all the patients receiving denosumab therapy from 01/01/2011 to 31/12/2016. A database to record baseline characters, indications and previous fracture was prepared. Renal function, calcium, alkaline phosphatase (ALP), vitamin D levels at baseline and renal function, calcium and ALP levels for each injection visit were noted. Vitamin D status was assessed at least once a year. Reasons to stop therapy were recorded.

Results: 237 patients were offered the treatment. One patient declined the treatment at the beginning.

5 (2.1%) patients had fracture on treatment. 2 had a hip fracture and one of them had a previous fracture (humerus). Other fracture sites were ankle, humerus and metatarsal. None of them had any further fractures during the follow up period.

61 patients discontinued therapy during the course of treatment over 3 years. 8 (4.2%) had infections, 7 (3.6%) due to declining eGFR and 9 (4.7%) were lost to follow up. 1 patient had jaw necrosis after the first injection. 1 developed hepatitis after the first injection which resolved on withdrawal of therapy. 6 (3.1%) patients withdrew consent for therapy. 19 (8%) patients died causes unrelated to denosumab therapy. 23 (9.7%) patients moved away. Treatment was stopped due to other side effects in 3 patients (2 had rash and 1 headache). There were no episodes of hypocalcaemia.

Conclusions: 1. Majority patients were elderly and female. Majority were high risk and had received osteoporosis treatments previously.

2. Denosumab therapy was well tolerated and nearly 2/3rd were still receiving therapy at 3 years. Treatment was withdrawn due to an adverse event in only 14 (6%) patients.

3. Fracture rate was very low and there were no repeat or multiple fractures.

References:

- [1] Pappapoulos S et al. The effect of 8 or 5 years of denosumab treatment in postmenopausal women with osteoporosis: results from the FREEDOM Extension study. *Osteoporosis Int*. 2015 Dec;26(12):2773–83.

Disclosure of Interest: None declared

DOI: 10.1136/annrheumdis-2017-eular.5290

AB0854 THE BMD CHANGE AFTER IBANDRONATE (BONVIVA®) TREATMENT IN OSTEOPENIC POSTMENOPAUSAL WOMEN

S.E. Park, K. Choi. *Orthopaedic Surgery, Dongguk University International Hospital, Seoul, Korea, Republic Of*

Background: Ibandronate (Bonviva®) is effective in the treatment of postmenopausal women with osteoporosis. But, there were few datas about Ibandronate (Bonviva®) treatment in Korea. We evaluated the effect of Ibandronate (Bonviva®) therapy on bone mass and compared the effectivity on bone mineral density (BMD) in 1-year treatment group

Objectives: The aim of the study is to assess the effect of 1-year treatment with Ibandronate (Bonviva®) on bone mineral density (BMD) in postmenopausal women with osteopenia or osteoporosis.

Methods: The BMD was assessed in 118 postmenopausal women with osteopenia or osteoporosis from March 2007 to January 2011, 42 patients who treated with 2.5 mg per day of Ibandronate (Bonviva®) were enrolled to study. BMD of lumbar spine (L2-L4) and femur was assessed by dual energy absorptiometry at baseline, 12 months after treatment.

Results: The annual BMD of the lumbar spine showed a 9.11% increase, while also positive changes were noted in the proximal femur as a 1.89% increase. The BMD changes were 11% (L: Lumbar spine) and 1.1% (F: Femur) for the T-scores <-4.0, 6.3% (L) and 0.9% (F) for the T-scores -3.0~-4.0, and 3.8% (L) and 0.5% (F) for the T-scores >-3.0 respectively.

Conclusions: This study suggests that Ibandronate (Bonviva®) treatment in postmenopausal women with osteopenia or osteoporosis is effective in terms of improving BMD.

References:

- [1] Llewellyn-Jones D. Osteoporosis. In: Burger H, Boulet M editors. A portrait of the menopause: expert reports on medical and therapeutic strategies for the 1990s. Lancs: The Parthenon Publishing Group 83–103, 1991.
- [2] Kanis JA, Melton LJ III, Christiansen C, Johnston CC, Khaltaev N. The diagnosis of osteoporosis. *J Bone Miner Res* 9:1137–1141, 1994.

Disclosure of Interest: None declared

DOI: 10.1136/annrheumdis-2017-eular.1036

AB0855 THE DISPARITIES BETWEEN FRACTURE RISK ASSESSMENT (FRAX) WITH BMD AND WITHOUT BMD IN KOREAN PATIENTS WITH ANKYLOSING SPONDYLITIS- MULTICENTER TRIAL

S.-R. Kwon¹, S.T. Choi², C.-H. Suh³, H.-A. Kim³, J.-Y. Jung³, S.-S. Kim⁴, S.-H. Kim⁵, J.-M. Kim⁵, S.-Y. Lee¹. ¹Division of Rheumatology/Dept. of Internal Medicine, College of Medicine, Inha University, INCHEON; ²Division of Rheumatology/Dept. of Internal Medicine, College of Medicine, Chung-Ang University, Seoul; ³Division of Rheumatology/Dept. of Internal Medicine, College of Medicine, Aju University, Suwon; ⁴Division of Rheumatology/Dept. of Internal Medicine, College of Medicine, Ulsan University, Gangneung Asan Hospital, Gangneung; ⁵Division of Rheumatology/Dept. of Internal Medicine, College of Medicine, Keimyung University, Daegu, Korea, Republic Of

Objectives: The aims of this study are to determine the proportion of patients with ankylosing spondylitis (AS) at high risk for major osteoporotic and hip fractures of Fracture risk assessment (FRAX) in Korean and to determine if a care gap exists for high risk.

Methods: This study is a multicenter study including 163 AS patients in 5. All of the AS patients fulfilled the modified New York criteria. The classification of osteoporosis according to WHO criteria was based on T-score ≤ -2.5. The FRAX criteria for high risk of osteoporotic fracture, which is 10-year probability of ≥20% for major osteoporotic fracture or ≥3% for hip fracture, were calculated by the FRAX tool including the bone mineral density (BMD) values. We assessed various demographic factors, clinical and laboratory findings of AS, and medication use for AS and osteoporosis, and then evaluated the risk factors for osteoporotic fracture.

Results: The mean age of AS patients was 44.3 years, and 42 patients were female (25.2%) with 23 postmenopausal women 56.1%. Osteoporotic fracture was detected in 16 (9.8%) patients with AS. Among the 16 patients ≥65 years of age, 2 (12.5%) and 8 (50%) were at high risk for a major osteoporotic fracture (10-year probability >20%) and hip fracture (>3%), respectively.

Among patients with BMD measurements (n=106), the 10-year risk of a major osteoporotic fracture and hip fracture calculated with BMD was significantly higher than in those without BMD measurements (P=0.001, P=0.002) respectively. The 10-year risk of a major osteoporotic and hip fracture fracture calculated with BMD was significantly higher than in those without BMD measurements (P<0.001, P=0.003) respectively among male patients with BMD measurements (n=74). There is no statistic difference of the 10-year risk of a major osteoporotic fracture

Abstract AB0853 – Table 1. Baseline characters

Total no of patients	Gender F (%) / M (%)	Age (in years) Mean (range)	eGFR Mean (range)	Prior fracture (%)	Baseline bone density (data for 99 patients)	
236	210 (89%) / 26 (11%)	76 (45–95)	37.9 (17.7–90)	93 (39.4%)		
		> 75	<30	Vertebral	Osteoporosis	61 (61.6%)
		65–74	30–59.9	Wrist	Osteopenia	30 (30.3%)
		55–64	> 60	Hip	Normal	8 (8.1%)
		<55		Multiple		