Methods: Included in the study were patients treated with a single intravenous ZOL infusion 5 mg. Exclusion criteria were previous treatment with ZOL, treatments interfering with CTLA-4, and estimated glomerular filtration rate <35 ml/min. APR was defined as a rise in axillary temperature above 38°C at any time during the first 48 hours and an increase in musculoskeletal pain by more than 10 mm in a visual analogue scale (VAS, from 0 to 100 mm). Clinical and laboratory parameters were assessed at baseline, before ZOL, and at 24, 48 and 72 hours after the infusion.

Results: Ten female patients (mean age 73-10 years) were included (2 had vertebral fractures and the remaining had osteoporosis), 5 of whom experienced APR (APR+) associated with the expected increases in serum CRP and IL-6. Baseline levels of sCTLA-4 did not differ between APR+ and APR- patients and decreased significantly in all from 32.9 ng/ml to 24.9 ng/ml ($p=0.007$) at 24 hr, 16.8 ng/ml ($p=0.004$) at 48 hr and 7.6 ng/ml ($p<0.001$) at 72 hr. Absolute value of sCTLA-4 and mean% change of sCTLA-4 after ZOL were not statistically different between APR+ and APR- patients. At 72 hr, sCTLA-4 decreased by 77% (-23%) in APR+ and by 81% (-20%) in APR- ($p=0.786$). There were no statistically significant correlations between serum sCTLA-4 levels with any clinical or biochemical parameter of APR.

Conclusion: Contrary to our hypothesis, sCTLA-4 was not related to the occurrence of APR after ZOL. The significance of the substantial decrease of circulating levels of sCTLA-4 after ZOL in all studied patients warrants further investigation.

Disclosure of Interests: Gerolamo Bianchi Consultant for: Alfa-Sigma, Amgen, BMS, Celgene, Medac, UCB, Speakers bureau: Abbvie, Abiogen, Alfa-Sigma, Amgen, BMS, Celgene, Daniele Saverino: None declared, Dario Camellino Consultant for: Janssen-Cilag, Novartis, AbbVie, Sanofi, Paid instructor for: Mylan, Andrea Giusti Grant/research support from: Abiogen Pharma, Consultant for: EffRx, Speakers bureau: Abiogen Pharma, Eli Lilly, AMGEN, Erika Iervasi: None declared, Giuseppe Girasole: None declared, Socrates Papapoulos Grant/research support from: No in the last 3 years, Consultant for: Amgen, Axsome, Gador, Radius Health, UCB, Speakers bureau: Amgen, UCB

DOI: 10.1136/annrheumdis-2019-eular.6198

FRI0481 MEDIATORS OF BONE METABOLISM (DKK1, OPG, SCLEROSTIN AND RANKL) IN A COHORT OF PATIENTS WITH ELDERLY-ONSET ARTHRITIS

Anahy Brandy-Garcia¹, Melania Martinez-Morillo¹, Roxana Coras², Lourdes Mateo Soria¹, Susana Holgado Pérez¹, Maria Aparicio Espinar¹, Águeda Prior-Español¹, Anne Riveros¹, Clara Sanguesa¹, Jordi Camins-Fàbregas¹, Ivette Casafont-Solé¹, Annika Nack¹, Alejandro Olive¹, Monica Guma², Laia Gifre¹.
¹Hospital Universitario Germans Trias i Pujol, Rheumatology, Badalona, Spain;
²University of California, Department of Medicine, School of Medicine., San Diego, United States of America

Background: Patients with elderly-onset arthritis have greater comorbidity than young patients, with a higher incidence of osteoporosis (OP), probably mediated by increased bone resorption. However, there are few data on bone metabolism mediators in this population.

Objectives: To analyze bone remodeling mediators (DKK1, sclerostin, osteoprotegerin [OPG], and RANKL) in patients with elderly-onset arthritis and its relationship with bone mineral density.

Methods: Longitudinal observational study that included patients with elderly-onset arthritis (> 65 years) without diagnosis of OP or on antiosteoporotic treatment. Phospho-calcium metabolism, quantification of bone remodeling mediators (ELISA, R&D systems) and bone densitometry, were determined in all patients at diagnosis and at 12 months. The results were compared with a control group of the same age and sex ($n=14$). The statistical study was performed using SPSS.

Results: We included 73 patients (37F: 36M), with a mean age of 75±7 years. Most were diagnosed with rheumatoid arthritis (RA) ($n=43$), followed by polymyalgia rheumatica ($n=16$) and others ($n=14$). Fifteen patients were rheumatoid factor (RF) positive and 23 were ACA positive. Five patients had erosions at the diagnosis. 88.64% of patients with RA had an initial DAS28-VSG >5.1. Only 3 patients had previous fragility fractures (2 vertebral and 1 femur fractures).

At diagnosis, patients with elderly-onset arthritis had higher levels of DKK1 and CTX than the control group, with no statistically significant differences in sclerostin, OPG, and RANKL values (table 1). In addition, DKK1 values were negatively correlated with sclerostin ($r=-0.286$, $p=0.016$) and OPG ($r=-0.276$, $p=0.020$). 31.9% had densitometric OP. We found no significant differences in bone remodeling mediators between patients with/without basal OP.

At 12 months, DAS28-VSG was <2.6 in 38.1%. The mean corticosteroid dose was 5.5 mg/day with a cumulative dose of 1630±426 mg. 45.8% received antiosteoporotic treatment (28 patients' bisphosphonates and 5 denosumab). The prevalence of OP at 12 months was 31.3% and 4 patients had new fractures (4 vertebral and 1 femur fractures). We observed a marked decrease in the values of DKK1 (-18.89%, $p<0.001$) and sclerostin (-46.76%, $p<0.001$) and an increase in OPG (11.97%, $p=0.018$).

We didn't found relationship between bone metabolism mediators and cumulative corticosteroid dose. There were not differences in terms of diagnosis (RA or PRM), ACPA positivity, activity scores or treatment with bisphosphonates.

Conclusion: Patients with elderly-onset arthritis have higher Dkk1 values than the control group, and this correlate negatively with sclerostin and OPG. The marked decrease in Dkk-1 and sclerostin at 12 months, and the increase in OPG, suggests a role for these mediators in the bone metabolism of this population. It is important to note the high prevalence of OP in this group of patients.

Table 1. *We excluded patients treated with denosumab. † $p<0.005$ with respect to the control group. ‡ $p<0.05$ with respect to baseline

Variables	Control N=14	Basal patients N=73	12 months patients* N=72
VSG(mm/h)	14±10	55±27†	27±18†‡
PCR(mg/L)	3.6±6.6	38.1±50.6 †	4.9±5.5 †‡
HAQ	-	1.6±0.75	0.51±0.57 ‡
DAS28-VSG(in RA)	-	6.32±1.04	3.10±1.30 ‡
{n=43}			
CTX(ng/mL)	0.33±0.18	0.49±0.19 †	0.26±0.13 ‡
OPG(pg/ml)	3127±948	3319±1134	3647±1466 ‡
DKK-1(pg/ml)	1558±555	2740±1611 †	1516±985 ‡
Sclerostin(pg/ml)	1299±961	1189±626	515±333 †‡
RANKL(pg/ml)	122±184	101±102	-
RANKL undetectable n (%)	9(64.3)	16(22.5)	72(100)

Disclosure of Interests: None declared

DOI: 10.1136/annrheumdis-2019-eular.5305

FRI0482 RISK FACTORS FOR FRAGILITY FRACTURE IN PATIENTS WHO SMOKE: AN OBSERVATIONAL STUDY

Dominic Beith¹, Marwan Bukhar². ¹Lancaster University, Lancaster Medical School, Lancaster, United Kingdom; ²Royal Lancaster Infirmary, Rheumatology, Lancaster, United Kingdom

Background: Smoking is a risk factor for osteoporosis and increases the likelihood of a fragility fracture. It is included in the FRAX™ tool, which is used as an aid for bone mineral density (BMD) referral and as a risk stratification for the propensity of developing a fragility fracture. The additive effect of other risk factors including demographics increasing the risk of fracture has not been explored in a large cohort.

Objectives: To investigate the additive predictors of fracture in patients who have smoking as their only risk for fracture, referred for BMD estimation.

Methods: Patients who were referred for bone mineral density (BMD) estimation in a scanner in the North West of England between June 2004 and October 2015 were included in the analysis. Patients with only smoking as a FRAX™ risk factor were then analysed. All patients have their other risk factors for fracture and demographics recorded at time of scan. All patients with other FRAX™ indications for scanning were excluded including Rheumatoid Arthritis, Excess Alcohol, Steroids, family history of fracture and Secondary Osteoporosis. Patients in the smoking group were divided into those that had experienced a fracture and those that had not before comparing with Chi-squared test for categorical variables and T-test for continuous variables. Univariate and multivariate logistic models were then fitted to examine predictors of fracture in this group.

Results: 35,759 patients were referred for scanning during the period. 4096 (11.45%) were referred with smoking as their only indication for scanning. Mean age at scan was 64.43 (SD 12.38) and 3244 (79%) of the cohort were females. 1663(40.60%) had a fracture. Fractures were more prevalent in males with 383 (44.95%) compared to 1280 (39.46%) in females ($p<0.05$).

Univariate predictors shown in the Table 1 below.