Figure 1. Box plots of change from baseline to week 24 in biomarkers of bone metabolism observed values

ALP, alkaline phosphatase; CTX-1, C-terminal telopeptide of type 1 collagen; MMP-3, matrix metalloproteinase 3; P1NP, N-terminal propeptide of type 1 collagen
* $p < 0.001$ for tapered prednisone vs continued prednisone based on Wilcoxon signed rank test

Conclusion: The findings of this biochemical marker analysis suggest that withdrawal from GC after achievement of LDA or remission with TCZ results in increased bone remodeling, with a trend toward an anabolic window and reduced cartilage degradation. Given that it could take a year to recover from increased fracture risk after cessation of GC therapy,⁵ our results offer further insight on the reversible risk of systemic harm to noninflamed bone versus benefits for inflamed joints in the context of LDA or remission.

REFERENCES:

- [1] Canalis E, Delany AM. *Ann N Y Acad Sci* 2002;966:73.
- [2] Van Staa TP, et al. *Rheumatology* 2000;39:1383.
- [3] Kavanaugh A, Wells AF. *Rheumatology* 2014;53:1742.
- [4] Burmester GR, et al. *Arthritis Rheumatol* 2018;70(suppl 10).
- [5] Vestergaard P, et al. *Calcif Tissue Int* 2008;82:249.

Disclosure of Interests: Frank Buttgerit: None declared, Gerd Rüdiger Burmester Consultant for: Roche, Sanofi-Genzyme, Speakers bureau: Roche, Sanofi-Genzyme, J. Michael Nebesky Shareholder of: F. Hoffmann-La Roche, Employee of: F. Hoffmann-La Roche, Jenny Devenport Employee of: F. Hoffmann-La Roche, Marc Y. Donath Consultant for: Roche, Markus R. John Shareholder of: Roche, Employee of: Roche

DOI: 10.1136/annrheumdis-2019-eular.2703

OP0087 TRENDS IN HIP FRACTURE INCIDENCE IN WOMEN AND MEN OVER 1980-2015 IN OLMSTED COUNTY, MINNESOTA, USA

Delamo Bekele, Ann Kearns, Elizabeth Atkinson, Shreyasee Amin. *Mayo Clinic, Rochester, United States of America*

Background: Hip fracture incidence, which has been generally declining in North America, may have recently plateaued in women (Lewiecki, et al 2018).

Objectives: We examined the trends in hip fracture incidence over 1980-2015, in both women and men, from Olmsted County, Minnesota, USA.

Methods: Using the Rochester Epidemiology Project, a unique medical records linkage system that allows access to all (inpatient and outpatient) community medical records for Olmsted County residents, we identified all incident hip fractures among residents age ≥ 18 years between 1980-2015. Available medical records were reviewed by trained nurse abstractors to validate hip fractures identified and to determine their antecedent cause (pathological process [e.g., malignancy], severe trauma [e.g., motor vehicle accidents] and those due to no more than moderate trauma [by convention, equivalent to a fall from standing height or less]). Overall incidence rates were summarized separately for women and men, as well as by 5 year strata for different age groups (ages 18-39, 40-59, 60-79 and ≥ 80 yrs). Rates for women and men were each directly age-adjusted to the population distribution of US whites in 2010.

Results: Between 1980-2015, we identified 2488 hip fractures in women (73%, median age 84 yrs) and 918 hip fractures in men (27%, median age 80 yrs), 97.4% of which were in whites. The majority of hip fractures were due to no more than moderate trauma (88% in women; 81% in men). The overall age-adjusted annual incidence of first hip fracture over 1980-2015 was 154 per 100,000 person-

years (p-y) for women and 98 per 100,000 p-y for men. Hip fracture rates have decreased overall in women since 1980 (Table), however since 2005, there has been a trend for increasing hip fractures among women age 40-59 yrs and since 2010, a possible plateau vs. slight increase in hip fracture rate for women age ≥ 80 yrs. In men, there has been a general decrease in rates among those age 60-79 yrs and, at least since 2005, in men age ≥ 80 yrs, but there may be a trend for increasing hip fractures since 2010 in men age 40-59 (Table).

Years	Hip Fracture Incidence per 100,000 p-y by Age Group							
	18-39 yrs		40-59 yrs		60-79 yrs		≥ 80 yrs	
	Women	Men	Women	Men	Women	Men	Women	Men
1980-84	2	4	43	7	345	175	1954	1173
1985-89	4	4	32	11	329	163	1892	1188
1990-94	2	3	26	19	282	122	1914	771
1995-99	4	3	20	17	302	168	2117	1116
2000-04	2	6	10	9	199	132	1788	1300
2005-09	5	4	27	10	203	134	1320	1148
2010-15	4	4	27	29	162	125	1413	811

Conclusion: There appears to be different trends in hip fracture rates for women and men and by age groups. The factors contributing to the observed recent increases in hip fracture rates among women and men ages 40-59 yrs warrant further attention. As suggested by others, there may be a recent plateau vs. slight increase in hip fracture rates in older women, which we noted in women age ≥ 80 yrs since 2010. The decrease in hip fractures in older men, particularly in those age ≥ 80 yrs, may reflect improved awareness in recent years of osteoporosis in men with initiation of treatment or better mitigation of risk factors, but warrants further review.

REFERENCE:

- [1] Lewiecki E.M., et al. Hip fracture trends in the United States, 2002 to 2015. *Osteoporos Int* 29(3):717-722, 2018.

Disclosure of Interests: None declared

DOI: 10.1136/annrheumdis-2019-eular.6408

WEDNESDAY, 12 JUNE 2019

When rheumatoid arthritis (RA) does not walk alone: new data on comorbidities in RA

OP0088 COMORBIDITIES AS RISK FACTORS FOR RHEUMATOID ARTHRITIS (RA) AND ACCRUAL AFTER RA DIAGNOSIS

Vanessa Kronzer¹, Cynthia S. Crowson¹, Jeffrey Sparks², Elena Myasoedova¹, John Davis¹. ¹Mayo Clinic, Rochester, United States of America; ²Brigham and Women's Hospital, Boston, United States of America

Background: Understanding the timeline of comorbidity development in patients with RA may inform disease pathogenesis and help identify targets for improving outcomes (1).

Objectives: We first aimed to compare the prevalence of a comprehensive list of comorbidities in RA cases versus controls. Second, we aimed to investigate the time association of comorbidity development relative to RA onset to identify which comorbidities might predispose to developing RA and comorbidities that might result from RA.

Methods: We performed a case-control study using a biobank at a single center, identifying 821 cases of RA (143 incident) using a rules-based algorithm combining two diagnosis codes with use of a DMARD (PPV = 95%). We matched each case to three controls based on age, sex, and location of residence at the time of the biobank survey. Participants self-reported the presence or absence and age of onset for 77 comorbidities on the survey.

Results: Among the 3,276 RA cases and controls, mean age was 62 years, and 73% were female. Cases with RA had the same number of comorbidities as controls before RA diagnosis (median 1.0 vs 1.0, $P = 0.49$) but had more comorbidities by the time of the survey (median 5.0 vs 4.0, $p < 0.001$). At the time of the survey, several comorbidities were more common in participants with RA than controls (Table1). Cancer was not more common in RA cases than controls (31% vs 32%, $p = 0.80$), even among all cancer subtypes. The only comorbidities that tended to develop in the time period before RA diagnosis more often than controls were inflammatory bowel disease (1.9% vs 0.5%, $p < 0.001$) and type 1 diabetes (1.3% vs 0.4%, $p = 0.01$). In contrast, in the time period after RA diagnosis, myocardial infarctions were more common in cases with RA (3.8% vs 1.2%, $p < 0.001$) and hyperlipidemia was less common (11.4% vs 16.4%, $p = 0.004$) compared to controls.