age, gender, disease duration, seropositivity, HAQ and CDAI at BL, number of previous csDMARD and biologic DMARD (bDMARD), glucocorticosteroid and calendar year of treatment initiation. Missing data on covariates were imputed using multiple imputation with chained equations.

Results: A total of 4748 patients were eligible, including 585 who received TCZ mono and 4163 who received TNFi combo. Patients who received TCZ mono were older with a longer disease duration, more previous bDMARDs and less glucocorticosteroids at baseline (Table 1) compared with patients who received TNFi combo. The crude median retention for TCZ mono was 1.82 years (95% CI: 1.59–2.09) and 1.54 years (95% CI: 1.43–1.64) for TNFi combo, ($P=0.65$). Causes of discontinuation differed between TCZ mono and TNFi combo ($P<0.001$): TCZ mono stopped more frequently for ineffectiveness (25.7% vs. 13.8%) and TNFi combo stopped more frequently for safety issues (18.3% vs. 12.8%). In a country-stratified, covariate-adjusted analysis, we found that hazards of discontinuation were significantly lower among patients who received TCZ mono (HR: 0.71, $P<0.001$). More previous treatment with bDMARDs and a greater HAQ and CDAI at BL were significantly associated with greater risk of discontinuation.

Table 1. Baseline characteristics.

	TCZ mono (N = 585)	TNFi combo (N = 4163)	P
Age, yr, median [IQR]	57.8 [44.2–65.5], n = 585	54.3 [44.2–61.7], n = 4161	< 0.001
Female gender, N (%)	485 (82.9%), n = 585	3333 (80.1%), n = 4161	0.12
Disease duration, yr, median [IQR]	9.7 [4.5–16.7], n = 569	7.8 [3.3–14.3], n = 3575	< 0.001
Seropositivity (RF and/or ACPA), N (%)	445 (83.6%), n = 532	2573 (81.0%), n = 3175	0.17
N previous bDMARDs, N (%)			< 0.001
1	250 (42.7%)	2882 (69.2%)	
2	206 (35.2%)	526 (12.6%)	
≥ 3	129 (22.1%)	755 (18.1%)	
Glucocorticosteroids, N (%)	193 (33.0%), n = 585	2487 (59.7%), n = 4163	< 0.001
Concomitant csDMARD, N (%)			--
MTX	--	1766 (42.4%)	
MTX + other	--	1291 (31.0%)	
Other	--	1106 (26.6%)	
CDAI, mean (SD)	23.2 (16.1), n = 322	21.9 (14.7), n = 3021	0.25
HAQ, mean (SD)	1.4 (0.7), n = 226	1.1 (0.7), n = 2429	< 0.001

Conclusions: In routine care across 9 European countries, TCZ mono retention is better than TNFi combo in patients with RA who were TNFi-IR.

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SAT0207 LONG-TERM EFFECT OF BIOLOGICAL THERAPIES ON BONE MINERAL DENSITY (BMD) FOR RA PATIENTS COMPARED TO PATIENTS TREATED BY SYNTHETIC DMARD OVER AN 8-YEAR FOLLOW-UP

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Background: Secondary osteoporosis is a comorbidity of Rheumatoid Arthritis (RA). Previous studies have suggested that biological therapies may reduce the rate of generalized bone loss in RA. Most of them focus on the short-term effect of Tumor Necrosis factor alpha (TNF α) inhibitors while the long-term effect of biological therapies is rarely studied.

Objectives: Our primary aim was to analyze the long-term effect of biological therapies on bone mineral density (BMD) for RA patients compared to patients treated by synthetic DMARD over an 8-year follow-up.

Methods: Patients were selected from a prospective, observational cohort of RA patients meeting the ACR/EULAR 2010 settings in Nice University Hospital between 2001 and 2016. BMD was assessed before the introduction of the biological therapy and during the follow-up. Two groups were studied: patients treated by biological therapies (TNF α inhibitors, Tocilizumab, Abatacept, Rituximab or Anakinra) and patients treated by synthetic DMARD only. Demographic, disease

and treatment data were collected at each visit and BMD of the lumbar spine, femoral neck and total hip were assessed using dual energy X-ray absorptiometry (DXA) at baseline and after 1, 2, 3, 5 and 8 years.

Results: A total of 181 patients with active RA starting a biological therapy were included versus 131 patients treated by synthetic DMARD. In both groups, the BMD of the lumbar spine, femoral neck and total hip remained stable after a 2-year follow-up (respectively -0.37%, $p=0.66$ versus +0.02%, $p=0.83$, -3.70%, $p=0.77$ versus -5.35%, $p=0.74$ and -3.31%, $p=0.45$ versus -4.84%, $p=0.16$), while a significant bone loss was found between initial measurement and 3, 5 and 8-year follow-up at femoral neck and total hip level. There was no significant difference between patients whether treated by biological or non-biological DMARD neither over the 0–1-year period nor over the 0–2, 0–3, 0–5 and 0–8-periods. Bone loss in patients treated by Tocilizumab were statistically lower at femoral neck level compared with TNF α inhibitors ($p=0.02$), Abatacept ($p=0.02$) and Rituximab ($p=0.02$), but also at total hip level, in comparison with TNF α inhibitors ($p=0.05$) and Abatacept ($p=0.05$).

Conclusions: This study is the first to assess the effects of biological RA therapies as compared to synthetic DMARD ones. It highlights the protective effect of both biological and non-biological DMARD on bone loss during the first two years of treatment with no significant difference between them. Our results suggest that the effects of RA treatments depend on the inflammatory and disease activity which must be monitored clearly. Tocilizumab seems to be more effective than the other biological therapies, but further studies are necessary to confirm or fail this tendency.

Disclosure of Interest: None declared

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SAT0208 CYCLING VERSUS SWAPPING IN PATIENTS WITH RHEUMATOID ARTHRITIS WITH AN INADEQUATE RESPONSE TO AT LEAST ONE TUMOR NECROSIS FACTOR ALPHA INHIBITOR: A SYSTEMATIC REVIEW AND META-ANALYSIS OF OBSERVATIONAL STUDIES

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Background: In patients with rheumatoid arthritis (RA) who do not respond or lose response, opinions are divided on whether it is better to try an alternative TNFi (cycling) or switch to a therapy with a different mode of action (swapping).

Objectives: To compare the efficacy and safety of the cycling versus the swapping strategies.

Methods: We searched 4 electronic databases, sources of gray literature, and bibliographic references of relevant articles for observational studies evaluating the efficacy and safety of targeted therapies in adult RA patients who failed to respond to at least one TNFi. Studies were excluded if they were single-arm or had insufficient data to evaluate the outcomes of interest. Two independent reviewers selected studies, extracted data and evaluated study quality using the Newcastle-Ottawa Scale (NOS). Our primary outcome measure was change in Disease Activity Score of 28 joints (DAS28). We also evaluated the modified American College of Rheumatology 20%, 50% and 70% response criteria (mACR which excludes acute phase reactants) and total serious adverse events. All analyses were based on the random-effects model.

Results: Of 33,716 citations, 24 observational studies ($n=10,074$ patients) representing 14 countries, met the inclusion criteria. Eight were conference abstracts. Most publications (13 of 24) were based on registries. Most studies had a NOS score equal to or greater than 7 (out of 9) with comparability being the weakest domain. The mean age of patients was 48.7–62.8 years, the majority were females (78%) with a disease duration of 6–17.3 years and a baseline disability score 0.6–2.0. Sixteen studies evaluated cycling versus swapping directly of which 13 were suitable for analysis. Most compared TNFi to rituximab (10 of 13) with two studies investigating tocilizumab or abatacept and one comparing non-TNFi as a group. Other comparisons reported were: (i) cycling vs. conventional disease modifying antirheumatic drugs (cDMARDs), (ii) swapping vs. cDMARDs, (iii) cycling vs. another cycling alternative, (iv) swapping vs. another swapping alternative, (v) swapping monotherapy vs. swapping combined with cDMARDs, and (vi) combination of TNFi and non-TNFi vs. TNFi alone. At 12 and 24 weeks, DAS28 score improved significantly in those swapping compared to those cycling (mean difference (MD) 0.89, 95% confidence interval (CI) 0.05 to 1.74 and MD 0.34 95% CI: 0.2, 0.48; respectively). Similar results were observed for the mACR50 favoring the swapping strategy at 24 weeks (OR = 1.45 95% CI: 1.06, 1.98). At 52 weeks no difference was observed. No statistically significant differences were observed between groups in the odds of achieving DAS28 remission, mACR20 or mACR70, or experiencing a serious adverse event.

Conclusions: Current evidence from observational studies shows greater improvements with the swapping strategy compared with the cycling strategy in terms of efficacy for RA patients failing their first TNFi. No differences were observed regarding safety. Data were not available for anakinra, certolizumab pegol, golimumab, or tofacitinib.

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