inflammation related cells, IRC) data were collected. Flare over a period of 12 months was assessed using several definitions in order to evaluate their relevance for clinical outcomes. Associations with baseline characteristics were assessed using univariate statistics (Mann-Whitney-U and Chi-square). No correction for multiple testing was attempted.

Results: 98 patients (cs-DMARDs n=66, b-DMARDs n=32) accepted tapering and achieved at least 12 months follow-up. In the cs-DMARD group 55% were female; the median age was 64 years and median remission duration 25 months. For b-DMARDs 63% were female; the median age was 61 years and median remission duration 28 months. There was great heterogeneity in terms of flare rate according to the definitions used (Figure 2). Flare on tapering b-DMARDs was more commonly observed (29-70%) compared to cs-DMARDs (24-52%). Demographics were not associated with flare by any definition (except longer disease duration for cs-DMARD patients who lost Boolean remission status). Clinical (notably seropositivity) and US measures were associated with flare for cs-DMARDs. Reduced Treg and higher IRC's at baseline were associated with flare in patients tapering b-DMARDs.

Conclusion: Flare rate varied with the definition used and was more common when tapering b-DMARDs compared to cs-DMARDs. Flare was predicted in the latter patients by clinical and US (including seropositivity) findings, whereas T-cell abnormalities predicted flare in b-DMARD patients. These results will help formulate further tapering strategies.

REFERENCES

[1] Smolen JS, et al. EULAR recommendations for the management of rheumatoid arthritis with synthetic and biological disease-modifying antirheumatic drugs: 2016 update. Ann Rheum Dis. 2017.

[2] Singh JA, et al. 2015 American College of Rheumatology Guideline for the Treatment of Rheumatoid Arthritis. Arthritis & rheumatology (Hoboken, NJ). 2016.

Figure 1. Tapering Protocol

Order*	Drug	Baseline Dose	Taper 1	Taper 2	Taper 3	Taper 4	Taper 5
1	Hydroxychloroquine	400mg od	200mg od	stop	-	-	-
2	Sulfasalazine	1.5g bd	1g bd	1.5g od	500mg bd	500mg od	stop
3	Methotrexate	25mg/ week	15mg/ week	7.5mg/ week	no change	stop	-
N/A	Etanercept	50mg/ week	25mg/ week	25mg/ every other week	25mg/ every 4 weeks	stop	-
N/A	Adalimumab	40mg/ every other week	40mg/ every 4 weeks	40mg/ every 8 weeks	40mg/ every 16 weeks	stop	-
N/A	Infliximab	Variable	Halve dose	Double time interval	Double time interval	stop	-
N/A	Certrolizumab	200mg/ every other week	200mg/ every 4 weeks	200mg/ every 8 weeks	200mg/ every 16 weeks	stop	-
N/A	Golimumab	Variable	Every month	Every 2 months	Every 4 months	stop	-

NB: Patients were seen 3-monthly. If they remain in remission, they proceed to the next taper unless there is a significant clinical reason not to taper at the time of assessment (as per standard care). * Order of cs-DMARD therapy tapered if on dual/triple therapy

Figure 2. Rate of flare according to different definitions and associations with baseline characteristics

Flare Definition	csDMARD (n=66) Hydroxychloroquine n=13, Sulfasalazine n=4, Methotrexate n=49, (On monotherapy n=43, Combination therapy n=23)	bDMARD (n=32) Etanercept n=17, Adalimumab /Infliximab/ Certolizumab/Golimumab n=15
Physician Judgement (Increase in therapy +/- prescription of corticosteroid):	47% flare Higher total PD (p=0.005) RF positive (p=0.010) Higher total GS (p=0.012) ACPA positive (p=0.041)	50% flare Reduced Treg (p=<0.0001)
DAS28 flare (Increase in 3vDAS by ≥1.2)	24% flare RF positive (p=0.007) Higher total PD (p=0.018)	29% flare Reduced Treg (p=0.001)
Loss of remission (3vDAS28 ≥2.6)	38% flare Higher TJC28 (p<0.0001) Higher total PD (p=0.003) Higher CRP (p=0.006) RF positive (p=0.009)	44% flare Reduced Treg (p=0.001) Increased IRC (p=0.008)
Loss of LDA (3vDAS28 >3.2)	27% flare Higher TJC28 (p<0.0001) Higher CRP (p=0.01)	37% flare Reduced Treg (0.004) Increased IRC (p=0.006) RF positive (p=0.014)
Loss of Boolean remission* (TJC, SJC & CRP all ≥1)	52% flare Longer disease duration (p=0.005) Higher CRP (p=0.002)	70% flare No associations

* Considering only patients who were in Boolean remission at baseline: 46 for DMARDs and 30 for biologics. Patient global health assessment omitted due to missing data.

Abbreviations: Rheumatoid Factor (RF), Anti-Citrullinated Protein Antibodies (ACPA), Power Doppler Synovitis (PD), Grey Scale Synovial Hypertrophy (GS), Tender/Swollen Joint Counts (TJC28/SJC28), Age-corrected T-regulatory cells (Treg), Inflammatory Related Cells (IRC).

Disclosure of Interests: Hanna Gul: None declared, Frederique Ponchel: None declared, Paul Emery Grant/research support from: Pfizer, MSD, AbbVie, Bristol-Myers Squibb, Roche, Consultant for: Pfizer, MSD, AbbVie, Bristol-Myers Squibb, UCB, Roche, Novartis, Gilead,Samsung, Sandoz and Lilly

DOI: 10.1136/annrheumdis-2019-eular.6844

SAT0146

COMPARING DRUG SURVIVAL FOR BIOSIMILAR SB4 ETANERCEPT IN RHEUMATOID ARTHRITIS BOTH ETANERCEPT NAÏVE AND NON-MEDICAL SWITCH PATIENTS WITH ETANERCEPT REFERENCE DRUG IN A NORWEGIAN OUT-PATIENT CLINIC. PRELIMINARY RESULTS FROM A MULTI-CENTER STUDY

Glenn Haugeberg[1], Bjørg Tilde Svanes Fevang[2], Gunnstein Bakland[3], Erik Rødevand[4],Andreas Diamantopoulos[5]. *[1]Sørlandet Hospital Kristiansand, Rheumatology, Kristiansand, Norway*; *[2]Haukeland hospital, Rheumatology, Bergen, Norway*; *[3]University Hospital of North Norway HF, Rheumatology, Tromsø, Norway*; *[4]St Olav's Hospital HF, Rheumatology, Trondheim, Norway*; *[5]Martina Hansens Hospital, Rheumatology, Bærum, Norway*

Background: In Norway encouraged by the health authorities non-medical switch from reference drug to biosimilar drug has been performed in most patients on biologic reference drugs with biosimilar drugs available, including etanercept. There is a need for real life data understanding the effect of biosimilar drugs when these drugs are introduced in clinical practice.

Objectives: To explore drug survival for biosimilar SB4 etanercept in RA patients, both etanercept naïve and non-medical switch patients, and compare with the etanercept reference drug.

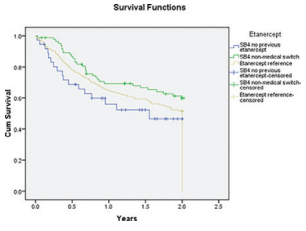
Methods: Preliminary 2 years drug survival data from one center in a 5 center study in Norway exploring drug survival for etanercept reference drug and biosimilar etanercept SB4 is presented. At this outpatient clinic RA patients as part of standard clinical care has been monitored systematically since 2003. Drug survival for SB4 etanercept, both the etanercept naïve and the non-medical SB4 switch group, was compared with patients treated with the etanercept reference drug in the period 2003-2018. Baseline demographic, clinical and treatment data were retrieved and analyzed. Kaplan-Meier survival curves were used to explore 2 years drug survival. Survival differences between groups were tested using Breslow statistics.

Results: At the outpatient clinic the number of RA patients treated with etanercept reference drug was 356, the number of patients treated with SB4 with no previous etanercept was 36 and the patients with a non-medical switch from reference etanercept to etanercept SB4 was 84. In the table below baseline demographics and disease measures are shown for the etanercept reference group, the non-medical SB4 switch group and the SB4 naïve to etanercept group. Data in table are presented as percentage for group variables and as mean with standard deviation (SD) for continuous variables.

	Etanercept reference (n=356)	SB4 non-medical switch (n=84)	SB4 etanercept naïve (n=36)
Age, years	63.7 (15.4)	62.2 (11.6)	58.1 (15.3)
Females	71.1%	69.0%	77.8%
Disease duration, years	12.6 (10.3)	18.3 (11.2)	8.5 (8.4)
Anti-CCP positive	75.4%	75.0%	73.7%
DAS28	4.9 (1.4)	2.8 (1.3)	4.0 (1.4)
ESR mm/hr	29.5 (21.5)	17.6 (13.7)	29.2 (26.3)
CRP mg/l	20.3 (23.1)	5.0 (6.5)	13.7 (16.7)
Pain (VAS 0-100)	53.1 (27.0)	30.2 (25.3)	46.5 (20.5)
Fatigue (VAS 0-100)	53.4 (30.6)	34.4 (33.4)	44.7 (27.6)
MHAQ	0.78 (0.56)	0.51 (0.61)	0.71 (0.44)

Mean (95%CI) drug survival for the non-medical SB4 switch group was1.53 (1.38-1.68) years, for the SB4 group with no previous etanercept 1.23 (0.95-1.51) years and for etanercept reference group 1.38 (1.31-1.46) years. A statistically significant difference (p<0.02) was found between the groups except between etanercept reference group and the etanercept SB4 group without prior etanercept (p=0.23). The percentage of RA patients starting with etanercept as first biologic drug was for etanercept reference 64.6% and for biosimilar etanercept SB4 36.1%.

In the figure below Kaplan-Meier drug survival curves are shown.



Conclusion: To the best of our knowledge this is the first data showing that drug survival of an etanercept biosimilar drug after a non-medical

switch is higher than a historical cohort of etanercept reference drug. This is expected, since it is a selected group of etanercept responders. The interpretation of the results should be cautious, since only few patients are included in this first analysis. A larger number of patients from other participating out-patient clinics is planned to be included.

Disclosure of Interests: Glenn Haugeberg Grant/research support from: For this study grant from Biogen, Consultant for: Medical Advisory boards for several companies, Paid instructor for: I have been paid for giving lectures for pharmaceutical companies and their employees, Speakers bureau: I have been paid for giving lectures in meetings organized by pharmaceutical companies, Bjørg Tilde Svanes Fevang: None declared, Gunnstein Bakland: None declared, Erik Rødevand: None declared, Andreas Diamantopoulos: None declared

DOI: 10.1136/annrheumdis-2019-eular.7423

SAT0147 EFFECTS OF BIOLOGICAL DISEASE-MODIFYING ANTI-RHEUMATIC DRUG TREATMENT ON PHYSICAL ACTIVITY, MUSCLE POWER, AGILITY AND INHIBITION OF FALL IN PATIENTS WITH RHEUMATOID ARTHRITIS

Yuji Hirano[1], Ayako Morisaka[2], Daisuke Kihira[1], Shiori Inuzuka[2], Takeshi Kamiya[2], Hiroyuki Mori[2], Naohito Morishima[2], Tomoji Ishikawa[3]. *[1]Toyohashi Municipal Hospital, Rheumatology, Toyohashi, Japan; [2]Toyohashi Municipal Hospital, Rehabilitation Center, Toyohashi, Japan; [3]Toyohashi Municipal Hospital, Rehabilitation Medicine, Toyohashi, Japan*

Background: It has been demonstrated that biological DMARDs (bDMARDs) treatment rapidly improved sign and symptom in patients with rheumatoid arthritis (RA). Those were evaluated using composite measures or biomarkers in daily clinical practice or clinical studies. Although rapid improvement of composite measures or biomarkers is important in the treatment of RA, primary important goal of treatment is improvement of long term health-related quality of life (HR-QOL) [1]. HR-QOL is based on physical function such as muscle power and agility.

Objectives: This study investigated the efficacy of bDMARDs on physical function and fall risk in patients with RA.

Methods: Periodic evaluation of physical function by the staffs in rehabilitation center in our institute has been performed in addition to routine rheumatology evaluation (SDAI, biomarkers, mHAQ) in RA patient initiated their first bDMARDs treatment from Oct. 2015 to Feb. 2018. 47 cases was registered in total. Evaluation of physical function included evaluation of muscle power (grasping power [GP] and knee extension power [KEP]), agility (Time up and go test [TUG] and 10m walking time [10mW]) and questionnaire using mHAQ, portable fall risk index [2] and the 25-question geriatric locomotive function scale (locomo25) [3] at baseline (initiation of bDMARDs), 1month, 3months, 6months and 12months. Disease activity of RA (SDAI, CRPMMP-3) was evaluated at same time point. Although 26 cases have passed one year from initiation of bDMARDs treatment, 9 cases dropped out from evaluation of physical function due to stopping of bDMARDs treatment or patient's hope not to e evaluated on physical function or major joint surgery performed in patient which was influence physical function. Results of early 17 cases who completed evaluation at 12 months were investigated in this study.

Results: Baseline patients characteristics was as follow (n=17): mean age 59.1 years old, RA duration 13.7 years, Mean SDAI 19.6, mean CRP 1.9mg/dl. Used bDMARDs were tocilizumab in 5 cases, golimumab in 4 cases, etanercept in 3 cases, abatacept in 3 case, certolizumab in one case and infliximab-biosimilar in one case. Date is presents as mean values at baseline-1-3-6-12 months below. SDAI and CRP were significantly improved on and after one month (SDAI: 19.6-9.6-5.8-5.7-5.5, CRP [mg/dl]: 1.9-0.3-0.3-0.3-0.8). GP and knee extension power significantly improved on and after one months except KEP at 3 months (GP [kg]: 12.3-14.1-15.9-16.9-17.4, KEP [N/kg] 2.6-3.1-3.1-3.4-3.5). TUG at 10mW significantly improved on and after one months except TUC at 3months and 10mW at 3 months (TUG [s]: 9.3-8.0-8.2-7.3-7.4, 10mW[s]: 8.3-7.7-7.5-6.9-6.8). MHAQ significantly improved on and from 6 months (0.46-0.33-0.19-0.20-0.12). Locomo25 significantly improved on and from 1 month (31.7-20.6-18.5-16.7-15.0). Portable fall risk index significantly improved at only 12 months (8.8-8.6-7.8-7.8-6.8).

Fig1. Mean values and p-value by bDMARDs Treatment in RA Patients

	Baseline	1 month	3 months	6months	12months
SDAI	19.6 (Cont.)	9.6 (<0.01)	5.8 (<0.01)	5.7 (<0.01)	5.5 (<0.01)
CRP (mg/dl)	1.9 (Cont.)	0.3 (<0.01)	0.3 (<0.01)	0.3 (<0.01)	0.8 (<0.01)
Grasping Power (kg)	12.3 (Cont.)	14.1 (0.049)	15.9 (0.01)	16.9 (<0.01)	17.4 (<0.01)
KEP (N/kg)	2.6 (Cont.)	3.1 (0.02)	3.1 (0.21)	3.4 (<0.01)	3.5 (<0.01)
TUG (second)	9.3 (Cont.)	8.0 (0.03)	8.2 (0.055)	7.3 (0.01)	7.4 (0.02)
10mW (second)	8.3 (Cont.)	7.7 (0.02)	7.5 (0.14)	6.9 (<0.01)	6.8 (<0.01)
mHAQ	0.46 (Cont.)	0.33 (0.12)	0.19 (0.02)	0.20 (<0.01)	0.13 (<0.01)
locomo25	31.7 (Cont.)	20.6 (0.03)	18.5 (<0.01)	16.7 (<0.01)	15.0 (<0.01)
Fall risk index	8.8 (Cont.)	8.6 (0.83)	7.8 (0.16)	7.8 (0.12)	6.8 (<0.01)

Data is expressed as mean (p-value). P-value was caluculated using Wilcoxon signed-rank test between baseline and each month.
SDAI: simplified disease activity index, KEP: knee extention power, TUG: timed up and go test, 10mW: 10m walking time, mHAQ: modified health assessment questionnaire

Conclusion: Signs and symptoms of RA were rapidly improved after the initiation of bDMARDs treatment and improvement of physical function was also rapidly improved. The changes from baseline and one month were more drastic in composite measure or biomarker of inflammation than that in muscle power and agility in respect with p-values. Inhibition of fall were achieved 12 months after bDMARDs initiation. These results suggested that physiotherapy might play an important role in RA patients treated with bDMARDs to gain more rapid improvement of physical function.

REFERENCES

[1] Smolen JS, et al. Ann Rheum Dis 2016.
[2] Toba K, et al. Jpn J Geriat 2005.
[3] Seichi A at al. J Orthop Sci 2012.

Disclosure of Interests: None declared
DOI: 10.1136/annrheumdis-2019-eular.2915

SAT0148 IMMUNOGLOBULIN A LEVELS IN ADDITION TO RHEUMATOID FACTOR PREDICTS REMISSION ACHIEVEMENT WITH ABATACEPT IN PATIENTS WITH EARLY RHEUMATOID ARTHRITIS

Jun Inamo, Yuko Kaneko, Jun Kikuchi, Tsutomu Takeuchi. *Keio University School of Medicine, Division of Rheumatology, Department of Internal Medicine, Tokyo, Japan*

Background: Biological disease modifying antirheumatic drugs (bDMARDs) now play an important role of clinical practice for patients with rheumatoid arthritis (RA). Abatacept (ABT) has a biologic agent that has an unique mechanism of action suppressing T lymphocyte activation. Although many prediction studies about therapeutic responses to bDMARDs for RA have been conducted to date [1], few studies has focused on ABT.

Objectives: The aim of this study was to identify predictive clinical biomarkers for remission achievement with ABT in RA patients.

Methods: We retrospectively reviewed consecutive patients with RA who started ABT from 2010 through 2018 in Keio University Hospital. We defined early ABT use as the initiation of ABT within two years from diagnosis without radiographic progression in hand X rays, and stratified the patients into the early ABT users and the late ABT users. Baseline characteristics were compared between patients who achieved CDAI remission achievement at 6 months and those who did not in both groups.

Results: One hundred and seven RA patients who were treated with ABT with baseline information available were enrolled in the study. Among them, 15 patients were classified into the early ABT users and 92 were the late ABT users, and the remission rates at 6 months were 40% and 24%, respectively. In the early ABT users, patients who achieved CDAI remission at 6 months showed significantly higher IgA levels than those who did not achieve remission (390 mg/dL vs 279 mg/dL, P=0.04, respectively). The difference in IgA disappeared in the late ABT users (332 mg/dL vs 313 mg/dL, P=0.60, respectively). Principal component analysis revealed that in the early ABT users, patients who