etiology of a variety of diseases, including DM and RA [1]. Additionally, cardiovascular and musculoskeletal complications from DM may influence the outcomes of RA patients.

Objectives: To investigate the impact of DM on outcomes of RA patients.

Methods: This is a cross-sectional study including 583 RA patients with 5 years' history after diagnosis in Tan Tock Seng Hospital RA registry, Singapore from 2001 to 2013. Information related to demographics, serologies, clinical features, comorbidities, and outcomes was collected. Independent t-test or Mann-Whitney U test was used to compare continuous quantitative data, while Pearson Chi-square or Fisher Exact test for categorical data. With adjustment for age, gender, ethnicity, smoking and comorbidities, multivariate regressions were performed to analyze the impact of DM on outcomes of RA patients.

Results: DM is more prevalent in Malay and Indian patients than Chinese patients with RA (26%, 24% and 11% respectively, $p = 0.005$). There is no difference of disease activity between DM and non DM patients. There is a tendency that non diabetic RA patients use more methotrexate ($p = 0.052$) and leflunomide ($p = 0.058$). Diabetic RA patients are in higher risk of poor American College of Rheumatology (ACR) functional status ($p = 0.009$), knee arthroplasty ($p < 0.001$) and admissions ($p = 0.006$). Adjusted for age, gender, ethnicity, smoking and comorbidities, multivariate regression analyses showed a trend of poor function status for diabetic RA patients, i.e. ACR functional status (adjusted odds ratio [aOR]: 1.802, 95% confidence interval [CI]: 0.968 – 3.353, $p = 0.063$) and median Health Assessment Questionnaire (HAQ) (β coefficient value: 0.129, 95% CI: -0.010 – 0.267, $p = 0.068$), and higher risk for knee arthroplasty for diabetic RA patients (aOR: 3.480, 95% CI: 1.016 – 11.920, $p = 0.047$).

Conclusion: This is the first report on the impact of DM on RA outcomes in a long term follow-up RA registry in a multiethnic Asian society.

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AB0271

EFFECTIVENESS OF DULOXETINE FOR RELIEF OF THE REMNANT PAIN OF RHEUMATOID ARTHRITIS PATIENT WHOSE DISEASE ACTIVITY IS REMISSION

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Background: Pain control in rheumatoid arthritis (RA) patient is an important matter. When pain remains even disease activity is remission, it causes deterioration of activity in daily living (ADL) in past research. In other words, pain affects ADL independently from disease activity, namely the Health Assessment Questionnaire (HAQ) score, a most popular index of ADL for patient with RA[1]. Thus, burden of remnant pain despite clinical remission in RA is serious and pending subject.

Duloxetine, a potent reuptake inhibitor of serotonin and norepinephrine, is developed for the treatment of major depressive disorder [2]. It's effectiveness for pain relief with osteoarthritis is also widely accepted. This drug should be effective not only for chronic pain due to osteoarthritis, but also due to RA. However, effectiveness of duloxetine for remnant pain relief in patient with RA in clinical remission is still unclear.

Objectives: In this study, effectiveness of duloxetine for the remnant pain despite clinical remission in patient with RA was statistically evaluated.

Methods: RA patients whose pain score with visual analog scale (PS-VAS) >30mm despite Clinical Disease Activity Score (CDAI) is <2.8, were picked up for the study. These patients were divided into groups whether duloxetine was administrated (a group without duloxetine: G-C; a group with duloxetine: G-D).

PS-VAS, C-reactive protein, CDAI and simplified disease activity index (SDAI), modified Health Assessment Questionnaire (mHAQ), and QOL value which is calculated from Euro-QOL 5-Dimensions (EQ-5D) were measured at the initiation of duloxetine in the G-D and at the first CDAI remission attained in the G-C, and at week 12 thereafter. Change of these indices were compared with One sample T-test for each group. Patient's global assessment (PGA) at baseline compared to the other components of CDAI was evaluated for each group statistically with One-tailed T-test.

Differences between the two groups at each moment were statistically evaluated with Mann-Whitney U-test. Statistical significance was set less than 1%. All statistical analyses were performed using StatPlus:mac[®] (Analyst-Soft Inc., Walnut, CA, USA).

Results: A total of three hundred and six patients were recruited. G-D counted sixty-eight with 18 males and 50 females, while G-C counted 238 with 57 males and 181 females. Average age were 71.3 and 71.5 for G-D and G-C, respectively, with 53.6 months for time span from baseline to initiation in the G-D. 80.8% of the patients in G-D sustained to administrate duloxetine. PGA was 0.6 and 0.5 for G-D and G-C respectively, while the other component of CDAI were below 0.3 in average for both groups and these values were significantly lower than the PGA score in both groups. PS-VAS was 46.4 and 44.0, and significantly decreased to 26.1 and 36.0 in average for G-D and G-C respectively at week 12 when compared to baseline. Reversely, the CDAI score was significantly elevated significantly from 1.16 and 1.19 to 3.25 and 4.34 for G-D and G-C respectively. PGA also significantly increased to 1.5 and 2.4 for G-D and G-C respectively. CRP and the SDAI score also demonstrated same trend significantly as the CDAI score for both groups. mHAQ decreased significantly from 0.430 and 0.495 to 0.393 and 0.487 for G-D and G-C respectively. QOL value increased from 0.800 and 0.817 to 0.811 and 0.840 for G-D and G-C respectively, however no statistical significance demonstrated in both groups.

Conclusion: Duloxetine has been suggested to have effectiveness for the pain relief, for improvement of ADL, and for the contribution to QOL maintenance, however, no effect of disease activity control is expected.

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14. Rheumatoid arthritis - biological DMARDs

AB0272

SWITCHING FROM ETANERCEPT ORIGINAL TO ETANERCEPT BIOSIMILAR. EXPERIENCE IN A TERTIARY HOSPITAL.

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Background: With the arrival of biosimilar drugs and savings policies to make the health system sustainable, hospital managers have chosen to make changes from original molecules to biosimilar drugs.

Objectives: This work aims to reflect what happens when making these switchings.

Methods: We reviewed 235 patients who started Etanercept original in Rheumatology at Navarra Hospital Complex and Henares University Hospital and their switch to Etanercept biosimilar with a follow-up of 6 months.

Results: The switch was performed in 174 patients with psoriatic arthritis (PsA), rheumatoid arthritis (RA), ankylosing spondylitis (AS), juvenile idiopathic arthritis, SAPHO and spondyloarthritis.

9.8% discontinued treatment: 6 RA (8.1%), 5 PsA (9.8 %) and 6 AS (20.7%); all of them in the injection presentation. 12 patient stopped treatment due to inefficacy, 2 due to reaction at the injection site, 2 due to diarrhea and 1 due to headache. Among 88.2% of patients who returned to Etanercept original, 28.6% did not achieve good response and had to change of treatment. The median time from Etanercept original beginning until the moment of switching was 54 (40-87) months.

Conclusion: In our series, approximately 10% of switching patients failed after a 6-month of follow-up; when trying to return to Etanercept original 28.6% did not achieve response.

The median persistence time in the original molecule and the percentage of failures observed in AS could be two conditions to consider before switching.

A longer-term follow-up and a greater number of patients are necessary to ratify these data.

Table 1

DISEASE	STOPPED CAUSE	BACK TO Etanercept original	CONTINUE Etanercept original	TIME UNTIL SWITCH (meses)
AS	Reaction at the injection site	Yes	Yes	28
AS	Headache	Yes	Yes	54
AS	Inefficacy	Yes	Yes	126
RA	Inefficacy	Yes	No	25
AS	Diarrhea	Yes	Yes	87
RA	Inefficacy	Yes	Yes	37
PsA	Inefficacy	No	No	43
RA	Inefficacy	Yes	Yes	54
PsA	Inefficacy	Yes	No	93
PsA	Inefficacy	No	No	132
PsA	Inefficacy	Yes	Yes	62
RA	Inefficacy	Yes	Yes	142
RA	Reaction at the injection site	Yes	Yes	51
RA	Inefficacy	Yes	No	56
PsA	Inefficacy	Yes	No	40
AS	Inefficacy	Yes	Yes	26
AS	Diarrhea	Yes	Yes	48

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AB0273

PREDICTORS OF DRUG SURVIVAL OF bDMARDs IN BIO-NAIVE PATIENTS WITH RHEUMATOID ARTHRITIS (RA) DURING THE FIRST YEAR OF THERAPY.

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Objectives: To investigate predictors of drug survival of bDMARDs in previously bio-naive patients (pts) with RA during the first year of therapy.

Methods: 204 adult bio-naive pts (173 women, 84.8%), with active RA, despite the concomitant DMARD therapy, were included into retrospective study. All of them initiated bDMARDs: infliximab (INF) - 65 pts (31.9%), rituximab (RTM) - 39 (19.1%), adalimumab (ADA) - 30 (14.7%), etanercept (ETA) - 28 (13.7%), abatacept (ABA) - 23 (11.3%), tocilizumab (TZ) - 15 (7.4%), certolizumab pegol - 4 (1.9%). The following indicators were used as survival predictors: sex, age and clinical form of RA. Pts were divided by age according to the classification adopted by the World Health Organization: 18-44 years (74 pts), 45-59 years (68 pts), 60-74 years (57 pts), 75 years or more (5 pts). Clinical forms of RA were presented: RA, seropositive by rheumatoid factor (RF), RA, seronegative by RF, RA with extra-articular manifestations, adult-onset Still's disease, juvenile RA. Predictors of therapy inefficiency or AE were investigated in Cox proportional risk model. Survival on drug was estimated using the Kaplan-Meier method and evaluation of difference significance using log-rank criterion.

Results: A year later, 92 pts (45%) remained on bDMARDs and 112 pts had their treatment discontinued. The reasons of bDMARDs discontinuation during the first year of treatment were: lack of effectiveness (including primary inefficiency) - 50%, adverse events (AE) - 25%, administrative causes - 17%, remission - 6.25%, death due to reasons unrelated to the therapy - 1.75%. By the end of the observation period, the best survival was shown by RTM therapy (69.23% of patients continued treatment for a year), ETA (44.4% of patients) and ABA (43.48% of patients). Discontinuation of bDMARDs due to remission was achieved in 7 patients and proved to be significantly higher in the RTM group (10.26%, $p < 0.05$) compared to the ABA group (8.7%) and ADA group (3.45%). Although the number of women continued after a year was significantly higher than that of men (84.8% and 15.2% respectively), female sex was not a reliable predictor of drug survival. At the same time, the rate of discontinuation due to AE in women was higher (96.55%, $p = 0.03$). After a year, the number of pts continuing treatment in all age groups remained comparable, and the difference between them - statistically not significant: 1 group (18-44 years old, 29 pts) - 31.52% of pts, 2 group (45-59 years old, 36 pts) - 39.13%, 3 group (60-74 years old, 26 pts) - 28.26%, 4 group (75-90 years old, 1 pts). Discontinuation of bDMARDs due

to inefficiency was noted in 1 group more often (46.43%, 26 pts, $p = 0.03$), in other groups this indicator was 33.93% (19 pts) in the 2nd group, 19.64% (11 pts) in the 3rd group and 0% in the 4th group. Discontinuation therapy due to AE was also prevalent in 1 group (50%, 14 pts) than in 2 (14.3%, 4 pts), 3 (32.1%, 9 pts) and 4 (3.6%, 1 pts). Discontinuation of therapy due to inefficiency was more common in the group of seronegative RA - 59.1% ($p < 0.05$). In the seropositive RA group 24.8% of pts had interrupted bDMARDs for this reason, in the RA with extra-articular manifestations group it was 18.1%, in the adult-onset Still's disease group - 30% and in the juvenile RA group - 30%. Discontinuation of therapy due to remission was overwhelmingly observed in seropositive RA group (6 pts, 4%) and was significantly higher than in other groups (1 patient in RA with extra-articular manifestations group, 4.5%).

Conclusion: Female sex, young age (18-44 years), RA, seronegative by RF were associated with less survival of bDMARDs due to lack of effectiveness and/or AE, and RTM and seropositive RA - with more frequency of discontinuation of therapy due to remission.

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AB0274

USE OF TNF-INHIBITORS BIOSIMILARS IN CHRONIC INFLAMMATORY ARTHRITIDES: A THREE-YEAR EXPERIENCE IN A LARGE MONOCENTRIC COHORT OF PATIENTS FROM THE NORTH-EAST ITALY

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Background: In recent years several biosimilars (BS) of tumour necrosis factor inhibitors (TNF-i) were introduced. At the Padova University Hospital the first BS of etanercept (bsETN) was available in October 2016 and the BS of adalimumab (bsADA) was available in November 2018.

Objectives: The objectives of the study were to evaluate the rate of bioriginator-biosimilar (BO-BS) switch in all patients with rheumatoid arthritis (RA), psoriatic arthritis (PSA) and axial spondyloarthritis (axSpA) in the cohort of the Padova University Hospital and to examine factors favouring BO-BS switch. Secondly, we investigated survival of BO-BS switch and BO treatment and factors associated with longer treatment survival.

Methods: We considered all patients on ETN originator (boETN) treatment when the first bsETN was available (1st October 2016) and all patients on ADA originator (boADA) when bsADA was available (1st November 2018). Patients were followed until 30 August 2019 and were classified as BO-BS switchers if they underwent a switch from either boETN or boADA to BS during the follow-up, otherwise they were considered as continuing BO treatment. Factors associated with BO-BS switch were tested with a multivariable regression analysis. To test the survival of the BO-BS switch and of the BO treatment, Cox regression analysis was used including all variables achieving a $p < 0.10$ in univariate analysis tested with Log-rank test and Kaplan-Meier curves.

Results: Among 1208 patients (553 RA, 433 PSA, 215 axSpA), 560 (46.3%) patients switched to bsETN (391) or bsADA (169). Mean disease duration was 16 (14.2) years and mean duration of the bDMARD treatment was 96.3 (56.8) months. After adjustment for potential confounders, factors associated with BO-BS switch were a longer disease duration, a shorter duration of previous bDMARD treatments and diagnosis (Tab.1) RA patients had almost a 3 fold increased likelihood of being switched to BS compared to PSA and axSpA, while difference between PSA and axSpA was not significant.

Following Cox regression analysis we observed a longer drug survival in BO-BS switchers compared to those continuing with BO (HR 1.38; 95% C.I. 1.2-1.58; $p < 0.001$) (Fig. 1). A longer drug survival was also associated with a longer disease duration (≥ 15 years: HR 1.75; 95% C.I. 1.5-2; $p < 0.001$), longer mean duration of previous bDMARDs (≥ 5 years: HR 4.1; 95% C.I. 3.5-4.7; $p < 0.001$), and diagnosis (RA vs PSA: HR 1.22; 95% C.I. 1.02-1.47; $p = 0.030$; RA vs axSpA: HR 0.89 95% C.I. 0.067-0.97; $p = 0.023$; PSA vs axSpA: HR 0.66; 95% C.I. 0.57-0.77; $p < 0.001$) (Fig 2).

Conclusion: BO-BS switch was undertaken in almost half of the patients. Patients with longer disease duration and longer bDMARD duration, were the most likely to be switched successfully to BS. BO-BS switching does not affect the survival of the treatment, indeed, it provides sustained effectiveness particularly if undertaken in patients with stable disease activity.