0.0001) and DAS28 ($p < 0.0001$), radiologic progression ($p < 0.0001$), positive RF ($p < 0.0001$), positive ACPA ($p < 0.0001$), elevated ESR ($p < 0.0001$) and CRP ($p < 0.0001$). In multivariate analysis, DAS28 ($p < 0.0001$), radiologic progression ($p < 0.0001$) and positive ACPA ($p = 0.000176$) were significantly associated with an earlier initiation of a biologic DMARD, whereas an older age of first joint pain was a protective factor ($p < 0.0001$) (Table 1).

Conclusion: In this study, less than one third of the ESPOIR cohort patients initiated a bDMARD over the 10-year follow-up. RA poor prognostic factors were associated with earlier initiation as expected.

Figure 1: Biotherapy onset in the ESPOIR cohort

Table 1. Results of the multivariate analysis

Covariates	Hazard-ratios [95% CI]	p-value
Age of 1st joint pain	0.97 [0.96 ; 0.98]	< 0.0001
DAS28	2.04 [1.84 ; 2.26]	< 0.0001
Structural damage on X-rays	2.30 [1.64 ; 3.22]	< 0.0001
Positive ACPA	2.01 [1.40 ; 2.89]	0.000176

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SAT0152

PREVALENCE AND SUCCESS OF 'TRY AND SEE' SUBCUTANEOUS BIOLOGIC DMARD DOSE REDUCTION IN ROUTINE CARE AND COST SAVING IMPLICATIONS

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Background: Biologic disease modifying anti-rheumatic drugs (bDMARD) are widely used in rheumatologic practice. Subcutaneous bDMARDs are licenced in a fixed dose for all indications (RA, PsA, AS) yet therapeutic drug monitoring (TDM) of TNF inhibitors (TNFi) reveals a wide range of serum drug concentrations (1). EULAR recommendations (2) state that 'one can consider tapering bDMARDs' if a patient is in persistent remission (usually by lengthening the interval between subcutaneous injections), and in trials up to 80% sustain remission after tapering over 39 weeks (3). In routine care bDMARD dose reduction is usually initiated on a 'try and see' basis, in the absence of guidelines.

Objectives: To assess the prevalence and success of subcutaneous bDMARD dose reduction in routine care, per disease indication and bDMARD class, and the cost saving implications.

Methods: Dose interval information was collected prospectively in patients on subcutaneous bDMARDs with RA, PsA and AS attending for routine

review at St George's University Hospitals NHS Foundation Trust from October – November 2018. Department practice is that bDMARD dose reduction is discussed (but not mandated) with patients in sustained remission on a 'try and see' basis, without TDM.

Results: Data on 88 patients (female 46) were collected, RA 39, PsA 36, AS 13, mean age 50 years (range 24-78), TNFi n=75, other bDMARDs n=13. The dose interval was per licence in 79.5%, less frequent in 18% and more frequent in 2.5%. In those taking a bDMARD less frequently than per licence, the dose interval was increased by a mean 2.15 x licenced interval (range 1.14 – 6 x); in RA 1.88x, PsA 2.12x and AS 2.64x. Dose reduction had been attempted in 32%, but failed due to loss of efficacy in 43% of these (13.6% of entire cohort), including 50% with RA, 46% PsA and 20% AS. In those attempting a dose reduction, there was no difference in the % sustaining this for Etanercept 57% (8/14) and Adalimumab 50% (5/10) but lower for all TNFi (54%, 13/24) treated patients compared to other bDMARDs (75%, 3/4). Dose reduction had not been attempted at any stage in 66% (RA 72%, PsA 61%, AS 62%). Cost savings from 16 patients with sustained dose reduction over 3 years in this cohort were £97,653, extrapolated to 18% of the entire population (n~1500) on subcutaneous bDMARDs at our Trust makes £1.65 million saving over 3 years.

Conclusion: 'Try and see' dose reduction of subcutaneous bDMARDs has been attempted in one third of patients in routine care, with more success in AS where 80% sustained a lower dose at a mean 2.64 x licenced interval, compared to 50% of RA and 54% PsA patients at 1.88 and 2.12 x licenced interval respectively. Guidelines, possibly based on TDM, are needed to optimise current practice which falls short of the success of dose reduction in clinical trials (3). Even with a 'try and see' approach failing in 43% of attempts, the cost savings are very substantial to the healthcare economy.

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SAT0153

1,25(OH)₂D AND IL-6 BLOCKADE SYNERGISTICALLY REGULATES RHEUMATOID ARTHRITIS VIA SUPPRESSION OF TH17 AND OSTEOCLASTOGENESIS

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Background: Immune cells express vitamin (vit) D receptor and vit D is known as a potent immune-modulator.

Objectives: Based on negative association of serum vit D level with rheumatoid arthritis (RA) disease activity on previous studies, we aimed to evaluate the role of the vit D in treatment response in RA patients on anti-IL-6 receptor antibody – tocilizumab.

Methods: RA patients on tocilizumab were enrolled, and data were collected retrospectively. Disease activity (disease activity score (DAS) 28), serum 25(OH)D level, modified Sharp's score of hand x-ray at the time of tocilizumab initiation and follow up were analyzed. Peripheral blood mononuclear cells (PBMCs) were differentiated into Th17 or osteoclast in the presence or absence of various concentrations of tocilizumab and/or 1,25(OH)₂D. Proportion of Th17 was analyzed by FACS.

Results: Among 98 RA patients on tocilizumab, 34 (34.7%) patients had sufficient serum 25(OH)D level (≥ 30 ng/mL) when tocilizumab was initiated. On 24 weeks, DAS 28 reduction was greater ($64.6 \pm 15.5\%$ vs. $52.7 \pm 20.7\%$, $P=0.004$) and more patients achieved low disease activity (91.2% vs. 70.3% , $P=0.018$) or remission (82.4% vs. 57.8% , $P=0.014$) in vit D sufficient group. On 48 weeks, DAS28 reduction and proportion of patients with remission was greater in vit D sufficient group as well. However, there was no significant difference in hand & wrist erosion progression. In vitro, tocilizumab and active vit D 1,25(OH)₂D treatment synergistically suppressed Th17 differentiation and osteoclastogenesis from PBMC.

Conclusion: RA patients being treated with IL-6 blocker show better response when they have sufficient serum vit D level. Active vit D

seems to suppress Th17 and osteoclasts differentiation in RA patients in synergy with tocilizumab.

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SAT0154

STABILIZATION OF RHEUMATOID ARTHRITIS ASSOCIATED INTERSTITIAL LUNG DISEASE BY RITUXIMAB: A SINGLE CENTER EXPERIENCE WITH LONG-TERM FOLLOW-UP

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Background: Interstitial lung disease (ILD) is the most significant pulmonary manifestation of Rheumatoid Arthritis (RA)[1], contributing to decreased quality of life, progressive chronic disability and high utilization of healthcare resources. Treatment is challenging with mixed results from different biologics while Rituximab (RTX) has the most encouraging data based on retrospective observational studies. [2]

Objectives: To evaluate the efficacy and safety of RTX in patients with RA-ILD in the context of daily practice.

Methods: Observational retrospective study (2009-2019) of patients with a diagnosis of RA-ILD from a cohort of RTX-treated RA patients in the University Hospital of Heraklion. ILD was diagnosed by HRCT and monitored by means of pulmonary function tests (PFTs), HRCT and 6-minute walking test (6MWT, clinically important difference >50 m). RTX was used at standard dose (1 gr x2/6 months). ILD progression was defined by any of: decrease of pre-RTX forced vital capacity (FVC) >10%, or diffusion capacity of carbon monoxide (DLCO) >15% predicted score, or death from progressive ILD. Improvement was defined by any of: increase of pre-RTX FVC >10% or DLCO >15% predicted. All other patients were classified as having stable disease. RA activity was assessed by DAS28 (ESR).

TABLE

Baseline	End of follow-up
6MWT, n (%)	
– Stable	10/12(83%)
– Improvement	0/12(0%)
– Worsening	2/12(17%)
FVC, n (%)	
– Stable	10/13(76%)
– Improvement	1/13(7.7%)
– Worsening	2/13(15.3%)
DLCO, n (%)	
– Stable	10/13(76%)
– Improvement	1/13(7.7%)
– Worsening	2/13(15.3%)
HRCT, n (%)	
– Stable	13/16(81%)
– Improvement	1/16(6.25%)
– Worsening	2/16(12.75%)
DAS 28 (ESR) (median (IQR))	
5.05(2-6.9)	2.99(2.9-5.5)

Results: Of 247 RA patients treated with RTX, 16 (11 women, 5 men) had RA-ILD (prevalence 6.5%). 12/16 (75%) had radiographic pattern of UIP and 4/16 (25%) had NSIP. 9/16 (56%) were positive for ACPA and

or RF. The median (IQR) age at RTX initiation was 66 (54-77) years. ILD duration prior to RTX was 5.2 (1-15) years. Number of prior biologics was 1 ± 4 and 11/16 (69%) have been treated with concomitant DMARDs. 1/16 (6.25%) had previously received Cyclophosphamide. Concomitant COPD was present in 3/16 (19%) of the patients. Follow-up while on RTX was 37 (6-136) months. The overall dose of RTX was 13 (2-40) g. Following RTX treatment, new-onset ILD was diagnosed in 3/247 patients (incidence=1.2%). During follow-up, data for ILD were available for 13/16 patients. Post-RTX, 10/13(76%) showed stabilization, 1/13 (7.7%) had improvement, while 2/13(15.3%) had progression of RA-ILD. 1/16(6.25%) switched to Cyclophosphamide. During follow-up period, 6 admissions were recorded due to infections (4 for community-acquired pneumonia and 2 for hospital-acquired pneumonia) and 1/16(6.25%) patient died after progression of ILD.

Conclusion: In this cohort of RA-ILD, the majority of patients treated with RTX showed stabilization of lung disease, while RA improved significantly, over a prolonged follow-up period. RTX appears to be an acceptable and safe therapeutic choice for patients with RA-ILD. Nevertheless, randomized studies are warranted to prove any clinical effectiveness of RTX in RA-ILD.

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SAT0155

THE PRESENCE OF ANTI-NUCLEAR ANTIBODIES BEFORE ANTI-TNF THERAPY IS A RISK FACTOR FOR THE APPEARANCE OF ANTI-DRUG ANTIBODIES IN PATIENTS WITH RHEUMATOID ARTHRITIS

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Background: TNF inhibitors (TNFi) revolutionized the treatment of rheumatoid arthritis (RA), but have often developed anti-drug antibodies (ADrA) and also induced other autoimmune pathology^{1, 2}.

Objectives: To determine whether presence of anti-nuclear antibodies (ANA) predict the development of ADrA and clinical efficacy in RA patients treated with TNFi, infliximab (IFX) or adalimumab (ADA).

Methods: A total of 92 RA patients, 38 cases treated with IFX and 54 cases with ADA, were prospectively enrolled. Observation period of IFX-treated group was 3 years, and that of ADA-treated group was 1 years. ANA were measured before and serially during the therapy. ANA were measured by indirect fluorescent assay using a Computer-aided microscope system with HEp20-10 cells. The concentrations of anti-IFX antibodies (HACA) and anti-ADA antibodies (AAA) were measured by radioimmunoassay at Sanquin Diagnostic Services, Netherlands. Clinical response to therapy was judged by EULAR response criteria based on Disease Activity Score (DAS) 28-CRP.

Results: Thirteen (34.2%) of 38 patients in IFX group and 18 (33.3%) of 54 patients in ADA group became positive for HACA and AAA, respectively, during the treatment. All of the ADrA-positive patients were ANA-positive before the therapy. In contrast, none became ADrA-positive after treatment in 15 RA patients negative for ANA before therapy (6 cases in IFX group and 9 cases in ADA group), and the positive rate for ADrA was significantly different between ANA-positive and negative patients ($p=0.0018$). In addition, the positive rate for HACA was significantly higher in patients positive for ANA titers of ≥ 640 ($p=0.034$), but that for AAA was not related to ANA titers. Next, ANA became positive in 4 of 6 ANA-negative patients and ANA titers increased in 21 of 32 ANA-positive patients after IFX treatment. HACA positive rate was significantly higher in patients with ANA titers of ≥ 640 after IFX treatment ($p=0.0045$). ANA titers of patients in ADA group were mostly unchanging after treatment, and were not related to the appearance of AAA.