SAT0194

SIGNIFICANT OVERTREATMENT WITH BIOLOGICAL DRUGS IS COMMON IN ROUTINE CARE FOR PATIENTS WHERE SERUM DRUG LEVELS ARE MONITORED

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Background: Current challenges in treating rheumatic disease include using the right drug at right dose for the right length of time. Measuring serum drug levels can help prevent over-treatment, inform regarding secondary drug failure on account of immunogenicity and improve confidence to extend the interval of drug dosing.¹ This pilot work was a prelude to the implementation of the first national monitoring service worldwide within the relatively endogenous Scottish population.

Objectives: 1. To develop skill and familiarity with TDM at a Scottish laboratory prior to a business case for a national service
2. To understand the reasons why a clinician would use the service as part of clinical practice
3. To understand the current extent of over and undertreatment in an endogenous population

Methods: ELISA assays (Promonitor) were supplied by GRIFOLS (Barcelona) for the detection of serum levels of adalimumab (ADA), infliximab (IFX), Golimumab (GOL), Etanercept (ETA) and Rituximab (RIX). A single laboratory site was selected and laboratory training was provided. A bespoke clinical request form was developed. Adult & paediatric rheumatologists across Scotland were invited to send serum biological drug trough samples for analysis. The clinical indication for testing was also captured.

Reference ranges for free drug levels and anti-drug antibody levels: Analyte: Lower limit of measurement-Upper limit of measurement. Units ug/mL: Adalimumab 0.024–12, Infliximab 0.2–14.4, Etanercept 0.035–40, Golimumab 0.036–12.8, Rituximab 0.75–204.

Results: Internal calibration and quality control for the assays were established. A total of 39 IFX, 26 ADA, 14 ETA, 3 RIX, 14 GOL samples were received (total n=96). Only 4 (4%) of patients had serum levels below the reference range and of these just one had anti drug antibodies, suggesting that immunogenicity was not a significant clinical factor in this population. Overtreatment was common: 19 patients (20%) had drug levels greater than the maximum value in the reference range. 12 patients had anti-drug antibodies, but only one of these had poor disease control, suggesting a high proportion had non-neutralising antibodies. Based on this study, if all overtreated patients had dosing interval extended by 33%, this would produce a drug budget reduction of 6–7 %, easily dwarfing the setup and running costs of a biologic drug monitoring service.

Clinicians requested samples to help assess flaring patients to determine if immunogenicity had occurred or drug levels were too low (n=36) confidence around tapering drug (n=28), switching to biosimilar (n=6) and miscellaneous other reasons (n=15)

Conclusions: In this population, immunogenicity was not clinically relevant. Overtreatment with biological drugs was common, highlighting potential longer term safety risk and opportunity for cost reduction by dose interval prolongation. Clinicians primarily indicate the usefulness of serum biological drug testing in determining if secondary failure has occurred or to aid decisions about drug dose tapering.

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SAT0195

OPTIMIZATION OF BIOLOGIC THERAPIES IN RHEUMATOID AND PSORIASIS ARTHRITIS: A SINGLE-CENTRE EXPERIENCE

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Background: A timely diagnosis and a suitable therapy allow a better control of disease activity and limit joint damage in autoimmune arthritis. Biological therapies played a key role, modifying disease natural history. However, the use of these drugs implies several risks and increases health-care costs [1]. This has

raised a question: could be possible, in patients in a state of sustained remission or low disease activity (LDA), choose an optimized regimen of treatment? Recommendations provided by EULAR in 2013 includes this possibility, especially if biologic therapy is in association with DMARDs [2]. While optimized regimen has been attempted in different clinical trials with good results, strong evidences are currently lacking [3].

Objectives: The aim of our study was to analyse the effectiveness of optimization of biologic therapies in a cohort of patients with Rheumatoid and Psoriatic Arthritis (RA and PA).

Methods: We retrospectively included patients undergoing optimized therapy in a cohort of 328 outpatients (190 RA, 128 PA) treated with first-line biologic therapy from 2006 to 2017. Optimization was considered as predefined dose down-titration and/or expansion of dose interval in patients with a sustained remission or LDA (DAS 28 -ESR <2.6 or 2.6–3.2 respectively, for at least 24 months). Relapse was defined by an increase in DAS28-ESR >20% over baseline or by the onset of at least one tender and swollen joint. Our principal end-points were: (I) estimate the proportion of subjects able to optimize therapy (II) define the rate of relapse at 6–12 and 24 months follow-up (FU) in patients undergoing optimization (III) compare the effectiveness of optimized therapy in RA and PA patients and value the rate of optimization in relation to different biologic drugs. Survival analysis (Kaplan-Meier Curves) and Chi Square test were used and a p value <0.05 was considered as statistically significant.

Results: During FU, 15/190 (8%) RA patients and 16/128 (12%) PA patients reached a persistent LDA or remission and started the optimized biologic therapy. In survival analysis, rates of relapse at 6 months were 10 % and 0% in RA ad PA respectively, increasing to 21% and 8% at 12 months and finally to 48 % and 34% at 24 months. No significant differences emerged between the two groups. The use of Etanercept was associated with higher possibility to optimize biologic treatment (p=0.007).

Conclusions: Biologic therapy optimization is a workable option in RA ad PA patients who reached persistent remission or LDA. In our cohort Etanercept seems to be the most promising drug. Further studies are needed to better define the predictive factors of response in order to identify eligible patients.

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SAT0196

TIME TO DISCONTINUATION OF BIOLOGIC THERAPY BY MECHANISM OF ACTION IN RHEUMATOID ARTHRITIS: RESULTS FROM THE ONTARIO BEST PRACTICE RESEARCH INITIATIVE (OBRI) COHORT

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Background: Patients with rheumatoid arthritis (RA) may discontinue their biologic disease modifying antirheumatic drug (bDMARDs) due to non-response, loss of response or adverse events. However, time to discontinuation may be related to mechanism of action.

Objectives: We aimed to compare drug survival of tumor necrosis factor inhibitors (TNFi) versus non-TNFi in patients initiating bDMARD treatment in a Canadian (Ontario) observational cohort.

Methods: Patients enrolled in the Ontario Best Practice Research Initiative (OBRI) who started bDMARD therapy within 30 days before or any time after OBRI enrolment were included in the primary analysis. Patients were followed from bDMARD start until discontinuation/switching, death, lost to follow-up, or last visit, whichever came first. Time to discontinuation/switching of bDMARD due to (i) any reason, (ii) non-response or loss of response, and (iii) adverse events (AEs), were assessed using Kaplan-Meier survival analysis for TNFi versus non-TNFi users.

Results: Among the 943 patients included in the primary analysis, 187 (19.8%) received non-TNFi and 756 (80.2%) TNFi. Mean (SD) age and disease duration were 56.4 (12.7) years and 9.6 (9.8) years, respectively, and the majority were females (79.1%) and biologic naïve (84.4%). TNFi included Etanercept,