These observations hint at a stratum of patients where remission is incomplete and may require a more tailored approach to therapy.

Objectives: In an early RA cohort we examine the relationship between US imaging and histological synovitis in the context of clinical remission and examine the predictive value of US to confirm synovial inflammation.

Methods: A prospective, observational study of 122 DMARD naïve, early RA patients classified according to the 1987 ACR criteria, with a maximum disease duration of 12 months (MRC PEAC study www.peacmrc.mds.qmul.ac.uk). One hundred and three synovial biopsies were analysed at baseline and 75 at 6 months, with 85 paired US 12 joint scores (US 12: 10 metacarpophalangeal joints (MCPJ) and 2 wrists). US images were analysed using a semi-quantitative score for synovial thickness (ST) and power Doppler (PD).⁴ Synovial inflammation was assessed using the Krenn synovitis scoring system. Fisher exact statistical test and Spearman's rank was used to determine the association and correlations.

Results: Demographics of this cohort are listed in table 1. There was a good correlation between US ST and PD scores with the Krenn histology score at the level of the single biopsied joint (ST: $r=0.47$, $p<0.001$, PD: $r=0.5$, $p<0.001$). An association continued to be demonstrated when extending the US data set to 12 joints (ST $r=0.27$ $p<0.01$, PD $r=0.28$ $p<0.01$).

Twenty-two patients with paired histology and ultrasound data were in DAS28 remission at 6 months and were eligible for analysis. A significant association between low PD ($\leq 3/36$) signal (but not ST) and low Krenn score (≤ 4) was demonstrated (Fisher exact test $p<0.03$) with a predictive value of 90%. This reduced to 80% in patients not in DAS remission at 6 months ($n=42$). Lastly, a clear relationship was noted between patients with US PD score recorded after 6 months of DMARD therapy ($n=62$, flares $n=19$). No subsequent flares were recorded during the course of the follow up period of 6 months with a low US PD score ($p<0.002$, negative predictive value 76%) and a high US PD score had a 86% positive predictive value for disease flare within this time course.

Conclusions: This study demonstrates that there is considerable validity in the use of US to assess disease activity, which reflects histological synovitis in patients in low disease activity states and remission. Ultrasound imaging may demonstrate a distinct clinical and histological remission cohort of patients and may be a useful predictive tool in terms of predicting subsequent clinical disease activity.

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THU0123

MEDICATION ADHERENCE AND COST-RELATED MEDICATION NON-ADHERENCE IN PATIENTS WITH RHEUMATOID ARTHRITIS, A MIXED METHOD STUDY IN IRAN

P. Heidari¹, W. Cross¹, M. Nazarinia², K. Crawford¹. ¹Monash Nursing and Midwifery, Monash University, Melbourne, Australia; ²Rheumatology Department, Shiraz University of Medical Sciences, Shiraz, Iran, -

Background: Rheumatoid arthritis (RA) is a chronic inflammatory disease that often requires long term treatment with multiple medications. Medication adherence is essential in patients with RA to manage the disease.

Objectives: This study aimed to assess medication adherence and cost-related medication non-adherence (CRN) among patients with RA in Shiraz, Iran from the perspective of patients and rheumatologists.

Methods: A convergent parallel mixed method study was employed. A survey targeted RA patients attending the outpatient clinics in Shiraz. The survey collected demographic information followed by an assessment of adherence using the Compliance Questionnaire Rheumatology (CQR)¹ and featured 4 questions on CRN.² The cut-off point of 80% was used to identify patients as adherent or non-adherent. Semi-structured interviews were conducted with rheumatologists exploring their experiences in regard to medication adherence and its determinants. Descriptive data analysis of the surveys was undertaken using SPSS version 24. Interviews were transcribed and analysed using thematic analysis.

Results: A total of 308 surveys were collected and 10 interviews were conducted. The majority of patients were female (86%), married (79.7%), living in urban areas (66.2%), housewives (73.1%), with no income (68.2%) and illiterate (41.9%). Six of the interviewed rheumatologists were male and participants had a mean of 8.6 years of experience as a physician. According to the CQR questionnaire; 59.7% of patients were considered non-adherent. In terms of cost, 26.3% of patients had

not refilled their prescription; 52.1% had delayed refilling their prescription; 18.2% had skipped doses; or 18.5% had taken less medication to make the medication last longer. In contrast, the rheumatologists considered that the majority of their patients were adherent to their prescribed medication. However, they saw medication side effects, poor patient-doctor relationship and high costs of biologics as barriers of adherence. Surveys found that only 19.9% of patients were using biologic agents. This is in concordance with rheumatologists' discussion about high costs of biologics and they will not prescribe biologics because they know that the majority of patients cannot afford the medication.

Conclusions: Although the findings of the survey suggested that medication adherence is sub-optimal among Iranian patients with RA, rheumatologists consider the majority of their patients as adherent. The high costs of the medication was found to contribute to medication non-adherence. Therefore, health policy makers should consider this issue while identifying the medication prices.

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THU0124

LOW INFLAMMATION ON MAGNETIC RESONANCE IMAGING IN PATIENTS WITH RHEUMATOID ARTHRITIS THAT ACHIEVED SUSTAINED CLINICAL REMISSION ON ADALIMUMAB: DATA FROM THE PREDICTRA STUDY

P. Emery¹, G. Burmester², E. Naredo³, I. Lagunes⁴, Y. Zhang⁴, X. Wang⁴, M. Hojnik⁵, P.G. Conaghan¹. ¹University of Leeds and NIHR Leeds Biomedical Research Centre, Leeds, UK; ²Charité-University Medicine, Berlin, Germany; ³Hospital Universitario Fundación Jiménez Díaz, Madrid, Spain; ⁴ABBVIE, N Chicago, USA; ⁵ABBVIE, Ljubljana, Slovenia

Background: ACR and EULAR recommend bDMARD tapering in patients (pts) with rheumatoid arthritis (RA) who achieved stable clinical remission. However, there are limited systematically collected data on objective magnetic resonance imaging (MRI)-assessed levels of musculoskeletal inflammation, especially tenosynovitis, in RA pts in stable clinical remission with previous data derived from a range of cohorts with differing definitions of clinical remission.

Objectives: To evaluate within the PREDICTRA study, the extent of disease control, in particular MRI inflammation, in RA patients in DAS28-based stable clinical remission, attained on adalimumab (ADA) at the standard dosing of 40 mg every other week (eow).

Methods: PREDICTRA is a multicenter, randomised, double-blind study generating data on pt and disease characteristics that may predict the clinical course of ADA dose-tapering for RA pts in stable clinical remission. RA pts with DAS28-CRP or -ESR ≤ 2.6 for ≥ 6 months following treatment with originator ADA 40 mg eow for ≥ 12 months in clinical practice were eligible to enter a 4 week (wk) lead-in study period with continued standard ADA dosing. Pts must have had confirmed DAS28-ESR ≤ 2.6 at the beginning and end of the lead-in period and quality-verified MRI of the most affected or, if both equally affected, the dominant hand to be eligible for randomization. Study assessments included multiple measures of disease activity (SJC28 and 68, TJC28 and 68, DAS28, CDAI, SDAI, patient's and physician's global assessment of disease activity), physical function (HAQ-DI, SF-36 PCS), and OMERACT RAMRIS scores for synovitis, tenosynovitis, bone marrow oedema, and erosions. Data of the randomised pts at the end of the lead-in period are presented.

Results: Of the 149 pts that entered the lead-in period, 122 (82%) were randomised. The randomised pts were 75% female, mean age of 59.7 $\pm$ 10.3 years, RA duration of 12.8 $\pm$ 9.8 years, prior ADA exposure for 5.1 $\pm$ 3.0 years, and DAS28 remission duration of 2.2 $\pm$ 2.1 years. Most pts received concomitant methotrexate (83.6%; mean dose 13.2 mg) and few received concomitant corticosteroids (9.8%; mean dose 3.2 mg). All the clinical disease activity measures showed very low disease activity. There was very low disease activity also in terms of the MRI inflammation scores (synovitis [3.5 $\pm$ 3.13], osteitis [1.0 $\pm$ 2.01], tenosynovitis [2.7 $\pm$ 2.7]). The mean MRI erosion score was low given the disease duration and the physical function scores were within normal levels (table 1).

Abstract THU0124 – Table 1. Summary of Patient Characteristics

Patient Characteristic (N=122)	Mean (SD)*
Duration of prior adalimumab, years	5.1 (3.0)
Duration of remission, years	2.2 (2.0)
Concomitant csDMARDs dose, mg	
Methotrexate (weekly)	13.2 (5.5)
Hydroxychloroquine (daily)	228.6 (75.6)
Sulfasalazine (daily)	750.0 (288.7)
Concomitant oral corticosteroids dose, mg (daily)	3.2 (1.7)
Anti-cyclic citrullinated peptide (ACCP), Unit	286.6 (206.4)
ACCP positive, n (%)	63 (52.9)
Rheumatoid factor (RF), KU/L	139.5 (395.4)
RF positive, n (%)	90 (76.3)
C-reactive protein (CRP), mg/L	5.3 (28.0)
Erythrocyte sedimentation rate (ESR), mm/hr	11.4 (8.4)
Tender joint count (TJC) 68	0.3 (0.6)
Swollen joint count (SJC) 66	0.1 (0.3)
DAS28 (ESR)	1.7 (0.6)
Clinical Disease Activity Index (CDAI)	1.3 (1.4)
Simplified Disease Activity Index (SDAI)	1.8 (3.0)
Patient's Global Assessment of Disease Activity –VAS, 0-100 mm	6.4 (8.9)
Physician's Global Assessment of Disease Activity –VAS, 0-100 mm	3.7 (5.0)
Pain –VAS, 0-100 mm	8.5 (11.5)
HAQ-DI	0.3 (0.4)
SF-36 MCS	54.4 (7.7)
SF-36 PCS	50.1 (7.8)
MRI OMERACT scores	
Synovitis, Range 0-24	3.5 (3.1)
Osteitis, Range 0-75	1.0 (2.0)
Tenosynovitis, Range 0-30	2.7 (2.7)
Erosion, Range 0-250	21.4 (26.9)

* All values are Mean (SD) unless otherwise specified
 ACCP = Anti-cyclic citrullinated peptide; CRP = C-reactive protein; ESR = Erythrocyte sedimentation rate; EAMs = extra-articular manifestations; HAQ-DI = Health Assessment Questionnaire – Disability Index; IBD = inflammatory bowel disease; MCS = mental component summary; OMERACT = Outcome Measures in Rheumatology; PCS = physical component summary; Pts = patients; RF = rheumatoid factor; SD = standard deviation; SF-36=Short form 36-item health survey; VAS = Visual Analogue Scale.

Conclusions: Pts with long-standing RA randomised to the tapering phase of the PREDICTRA study based on sustained DAS28-based clinical remission on prior standard dose ADA therapy showed very low levels of clinical disease activity and normal physical function. This concurred with low MRI inflammation scores, especially for osteitis and tenosynovitis, the latter pathology being reported for the first time in RA clinical remission pts.

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THU0125 PREVENTION OF THE PROGRESSIVE BIOCHEMICAL CARTILAGE DESTRUCTION UNDER METHOTREXATE THERAPY IN EARLY RHEUMATOID ARTHRITIS

P. Sewerin¹, A. Müller-Lutz², S. Odendahl², M. Eichner², M. Schneider¹, B. Ostendorf¹, C. Schleich². ¹Department for Rheumatology, University Hospital Duesseldorf, ²Department of Diagnostic and Interventional, Radiology, Heinrich-Heine University, Düsseldorf, Germany

Background: Can methotrexate (MTX) stop cartilage loss measured by Delayed gadolinium-enhanced MRI of the cartilage (dGEMRIC) in patients with early rheumatoid arthritis (eRA)?

Objectives: Objective of the study was to investigate biochemical cartilage composition under MTX therapy and to intra-individually assess the impact of inflammation severity on cartilage composition by using dGEMRIC MRI in patients with eRA.

Methods: dGEMRIC of MCP joints of the index and middle finger of 28 patients from the AthroMark cohort were examined prior to MTX-therapy as well as after 3 and 6 months. OMERACT RA MRI score and clinical parameters (CRP and DAS28) were registered at any time point. Each patient's second and third MCP joints were dichotomized into the joint with more severe synovitis versus the joint with less severe synovitis according to the RAMRIS synovitis subscore.

Results: MCP joints with more severe synovitis ('bad joints') demonstrated significantly lower dGEMRIC values compared to MCP joints with less severe synovitis ('good joints') at time-points 0 and 3 months (p=0.002; p=0.019, respectively). After 6 months of MTX therapy no significant difference of dGEMRIC index was found between good and bad joint (p=0.086).

Conclusions: Under MTX therapy, biochemical cartilage integrity remains stable; no further cartilage destruction occurred if patients are treated early in the course of the disease. In addition, six months of MTX therapy triggered an alignment of

dGEMRIC index of MCP joints with initially severe synovitis and less severe synovitis in an intra-individual assessment. This underlines the importance of an early treatment in eRA to reduce further cartilage damage of the inflamed joints.

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THU0126 IMPACT OF RESIDENTIAL AREA ON THE PROFILE OF RHEUMATOID ARTHRITIS PATIENTS INITIATING THEIR FIRST BIOLOGIC DMARD: RESULTS FROM THE ONTARIO BEST PRACTICES RESEARCH INITIATIVE (OBRI)

R. Joshi¹, M. Movahedi^{2,3}, E. Rampakakis², C. Thorne⁴, A. Cesta³, J.S. Sampalis⁵, C. Bombardier^{3,6,7}, on behalf of Other OBRI Investigators. ¹William Osler Health System, Brampton Civic Hospital, Brampton; ²JSS Medical Research, St-Laurent-QC; ³Ontario Best Practices Research Initiative, Toronto General Research Institute, University Health Network, Toronto; ⁴Southlake Regional Health Centre, Newmarket; ⁵McGill University, Montreal-QC; ⁶Department of Medicine (DOM) and Institute of Health Policy, Management, and Evaluation (IHPE), University of Toronto; ⁷Division of Rheumatology, Mount Sinai Hospital, Toronto, Canada

Background: Access to care and management of Rheumatoid Arthritis (RA) patients may differ based on residential area which, in turn, can affect the real-world effectiveness of anti-rheumatic medications.

Objectives: We aimed to describe differences in the profile of patients initiating their first biologic disease modifying antirheumatic drug (bDMARD) based on their residence in urban vs. rural areas.

Methods: RA patients enrolled in the OBRI initiating their first bDMARD within 30 days prior to or anytime following enrolment were included in the analysis. Patients excluded if they had less than 2 years of follow-up and less than 2 visits during this period of time. Patients characteristics included sociodemographics (age, gender, race, education level, marital status, smoking status, annual household income, health insurance coverage), disease duration, disease severity parameters (Disease Activity Score (DAS), Clinical Disease Activity Index (CDAI), Swollen and Tender Joints (SJC28, TJC28), Physician Global Assessment (PhGA), Patient Global Assessment (PGA), Health Assessment Questionnaire – Disability Index (HAQ-DI), presence of erosion), bDMARD type, and concomitant anti-rheumatic medications including conventional synthetic disease modifying antirheumatic drug (csDMARDs), non-steroidal anti-inflammatory drugs (NSAIDs), and oral steroids.

Results: A total of 629 RA patients were included of whom 522 (83%) resided in urban areas and 107 (17%) in rural areas. Other than marital status (urban vs. rural: 64.6% vs. 82.2% married; p<0.001) and race (urban vs. rural: 78.0% vs. 95.3% Caucasian; p=0.001) no significant differences in sociodemographics were observed between groups. However, patients from urban areas were less likely to have an erosion (46.6% vs. 50.5%; p=0.23), had lower TJC28 (7.2 vs. 7.9; p=0.43), and lower SJC28 (6.6 vs. 7.1; p=0.42) at bDMARD initiation. Type of bDMARD (anti-TNF vs. other mechanism of action) was comparable between groups (87.9% on anti-TNF) as was concomitant treatment with csDMARDs (84.9% on csDMARDs), and NSAIDs (19.6% on NSAIDs). Concomitant use of oral steroids was significantly lower in patients from urban areas (21.5% vs. 29.9%; p=0.04).

Conclusions: Important differences may exist in the profiles of RA patients initiating their first bDMARD, and residing in rural versus urban areas. The implications on treatment outcomes should be assessed.

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