Parameter	Estimate (95% CI)	P-value
Smoking (vs non-smoking)	0.60 (0.19 to 1.00)	0.01
Subcutaneous MTX administration route (vs oral)	-0.17 (-0.40 to 0.05)	0.13
MTX dose (mg/week)	-0.01 (-0.02 to -0.00)	0.00
bDMARD use (vs no bDMARD use)	0.45 (0.19 to 0.70)	0.00
DAS28 at baseline	0.36 (0.22 to 0.50)	0.00
Time	-0.25 (-0.27 to -0.23)	0.00
Time ²	0.01 (0.01 to 0.01)	0.00
BMI (mg/kg ²)	0.03 (-0.02 to 0.07)	0.26
Female gender (vs male)	-0.48 (-0.86 to -0.10)	0.02
Negative RF test status (vs positive)	-0.22 (-0.60 to -0.16)	0.25

Outcome measure: DAS28 over 2 years; CI: confidence interval; MTX: methotrexate; bDMARD: biological disease modifying anti-rheumatic drug; BMI: body mass index; RF: rheumatoid factor. A positive estimate reflects a higher DAS28 over time, corrected for baseline DAS28, and thus a lesser effect of the concomitant prednisone therapy

Conclusions: To our knowledge, this is the first time that smoking is shown to be a negative predictor for clinical response to pred in RA patients. Cessation of smoking needs to be encouraged in patients initiating bDMARDs, MTX and pred and in those already on these drugs

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THU0120 VITAMIN D IN INDIVIDUALS BEFORE ONSET OF RHEUMATOID ARTHRITIS – RELATION TO VITAMIN D BINDING PROTEIN AND ITS ASSOCIATED GENETIC VARIANTS

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Background: Vitamin D has been implicated as being involved in the aetio-pathogenesis of several autoimmune diseases including rheumatoid arthritis (RA). Previous studies present contradictory results. Vitamin D binding protein (DBP), the major transport protein, is also involved in various inflammatory processes.

Objectives: The aim of this study was to investigate the relationship between circulating levels of 25-hydroxyvitamin D [25(OH) D], DBP and polymorphisms in group-specific component (GC) in pre-symptomatic individuals and matched controls within prospective cohorts of the Northern Sweden.

Methods: Blood samples donated to the Medical Biobank prior to the onset of symptoms of RA (n=515, mean [SD] time before the onset of symptoms 6.2 [9.3] years) and from matched (2:1) population-based controls (n=267) were used. Plasma 25(OH) vitamin D levels were analysed using liquid chromatography tandem-mass spectrometry and DBP levels were analysed using enzyme-linked immunosorbent assay. GC polymorphisms (rs4588 and rs7041) were analysed with TaqMan assays (Applied Biosystems).

Results: Levels of 25(OH) D or DBP were not statistically different between pre-symptomatic individuals and controls in a crude, or a multiple-adjusted logistic regression model. However, an increased risk for future RA was found in females of DBP (OR 1.0001 [95%CI 1.000–1.0003]), adjusted for carriage of the minor allele of rs4588, in a multiple-adjusted model (p<0.05).

Conclusions: This study indicated that vitamin D is not associated with the future risk of RA although increasing levels of DBP were however, associated with an increased risk of disease in females carrying the minor allele of a DBP encoding SNP.

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Disclosure of Interest: None declared

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THU0121 MORTALITY RATE AND PREVALENCE OF CARDIOVASCULAR DISEASE IN RHEUMATOID ARTHRITIS: 5-YEAR KARRA PROSPECTIVE STUDY

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Background: Rheumatoid arthritis (RA), which is an autoimmune chronic arthritis, leads to elevated rates of disability and mortality.

The main causes of mortality identified among RA patients are increased incidences of cardiovascular (CV) disease, which accounts for one-third to one-half of the premature deaths, infection and cancer.

In our previous study, we identified that cumulative inflammatory burden contributes to the development of carotid atherosclerosis through a synergistic interaction with conventional CV risk factors in patients with RA.

During the 2 years follow-up period, the mortality rate was 2.4% (10/412), and the main causes of death were infection (4/10) and CV disease (3/10).

Objectives: To investigate the incidences of mortality and CV disease in patients with RA in the 5 year Kyungpook National University Hospital Atherosclerosis Risk in Rheumatoid Arthritis (KARRA) prospective study.

Methods: A total of 372 patients with RA and 162 healthy controls were followed up for 5 years or until deaths in a prospective KARRA cohort study (412 patients and 221 controls at baseline).

To detect the presence and progression of carotid atherosclerosis, we performed carotid ultrasound at baseline and 5 year.

We analysed the incidence of CVD, conventional CV risk factors, RA disease activity and severity markers, medication histories, mortality rate, and causes of death.

Results: During 5 year follow-up period, the mortality rate was 10.7% (44/412) in RA patients and 1.4% (3/221) in healthy controls (p<0.001), while the incidence of CVD were 11.4% (47/412) in RA patients and 0.9% (2/221) in healthy controls (p<0.001).

Among CVD in RA patients, cerebrovascular accident (CVA) and cardiovascular event (CVE) were 17 (36.2%) and 30 (63.8%) events, respectively.

Major causes of death included infection (21/44, 47.7%), CVD (12/44, 27.3%), and others (11/44, 25%).

The mean age, presence and number of carotid plaques, functional class, modified Korean version of the HAQ (mKHAQ), tender joint count (TJC), swollen joint count (SJC), ESR and CRP, and conventional CV risk factors at baseline and cumulative ESR (ESR area under the curve), DAS28-ESR and DAS28-CRP at year 5 were significantly associated with mortality in RA patients.

Multivariate logistic regression analysis showed that the presence of carotid plaque (OR 6.22 [95% CI 1.08–24.99; p=0.031]), mKHAQ (OR 1.04 [95% CI 1.01–1.12; p=0.014]), and ESR (OR 1.09 [95% CI 1.03–1.16; p<0.001]) at baseline and cumulative ESR (ESR area under the curve) (OR 1.047 [95% CI 1.01–1.13; p=0.048]) and DAS28-ESR (OR 1.55 [95% CI 1.08–2.21; p=0.016]) at year 5 were independent risk factors for mortality of RA patients.

Conclusions: During the follow-up period of 5 years, the mortality rate and prevalence of CV disease were significantly increased in RA patients, compared to the controls. Furthermore, main causes of death were infectious disease and CV disease. Furthermore the risk factor for CVD and mortality is carotid plaque which is determined by disease activity and CV risk factors.

Disclosure of Interest: None declared

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THU0122 IMAGING CHARACTERISATION OF REMISSION IN RHEUMATOID ARTHRITIS

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Background: Remission in rheumatoid arthritis (RA) is now achievable in a significant proportion of patients using a combination of a treat to target strategy and biologic therapy. A number of clinical assessment tools exist for assessing remission. Several reports have shown that ultrasound (US) may have a role in better characterising this group of patients suggesting that subclinical synovitis increases the risk of erosive disease and flares in patients in DAS28 remission.^{1–3}

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

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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

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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 ± 10.3 years, RA duration of 12.8 ± 9.8 years, prior ADA exposure for 5.1 ± 3.0 years, and DAS28 remission duration of 2.2 ± 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 ± 3.13], osteitis [1.0 ± 2.01], tenosynovitis [2.7 ± 2.7]). The mean MRI erosion score was low given the disease duration and the physical function scores were within normal levels (table 1).