Disclosure of Interests: Vibeke Strand Consultant of: Abbvie, Amgen, Arena, BMS, Boehringer Ingelheim, Celltrion, Galapagos, Genentech/Roche, Gilead, GSK, Ichnos, Immedix, Janssen, Kiniksa, Lilly, Merck, Novartis, Pfizer, Regeneron, Samsung, Sanofi, Sanofi, Setpoint, UCB, Stanley Cohen: None declared, Lixia Zhang Shareholder of: Scipher Medicine Corporation, Employee of: Scipher Medicine Corporation, Ted Mellors Shareholder of: Scipher Medicine Corporation, Employee of: Scipher Medicine Corporation, Alex Jones Shareholder of: Scipher Medicine Corporation, Employee of: Scipher Medicine Corporation, Johanna Withers Shareholder of: Scipher Medicine Corporation, Employee of: Scipher Medicine Corporation, Viatcheslav Akmaev Shareholder of: Scipher Medicine Corporation, Employee of: Scipher Medicine Corporation
DOI: 10.1136/annrheumdis-2021-eular.3341

AB0141

THE DYNAMICAL TRAJECTORY OF GLUCOCORTICOID TAPERING AND DISCONTINUATION IN RHEUMATOID ARTHRITIS PATIENTS COMMENCING GLUCOCORTICOID WITH CSMDARDS: A REAL-WORLD DATA FROM 2009 TO 2020

W. Xie¹, H. Huang¹, Z. Zhang¹. ¹Peking University First Hospital, Department of Rheumatology and Clinical Immunology, Beijing, China

Background: Glucocorticoids (GC) are currently recommended as bridging therapy in combination with csDMARDs in rheumatoid arthritis (RA) and should be tapered as rapidly as clinically feasible for safety concerns about their long-term use [1-3].

Objectives: To unravel the dynamical trajectory and characteristics of GCs tapering and discontinuation in RA patients commencing GCs with concomitant csDMARDs.

Methods: We used data from longitudinal real-world TARRA (Treat-to-TARget in RA) cohort in Peking University First Hospital. RA patient who started GCs and concomitant csDMARDs therapy over 1-year follow-up were included. The changes in GCs dose and disease activity in the context of csDMARDs were evaluated. GCs discontinuation rate was analyzed using Kaplan-Meier analysis. The relapse profiles within 6 months after GCs discontinuation were also analyzed.

Results: A total of 207 RA patients were included. During a median follow-up duration of 38.6 months, 124 (59.9%) patients discontinued GC. The median oral prednisolone dose of 10 (5-10) mg/d at initiation was reduced by 50% in the first 6 months and then more slowly reduced, finally to zero by 48 months. The cumulative probability of GCs discontinuation was 26.6% at year 1, 48.0% at year 2, 58.6% at year 3, with calculated median time of 27 months (Figure 1). Of the 124 patients who discontinued GCs, add of other csDMARDs or increment of current csDMARDs was required in 29.0% of them. Approximately half of 124 patients were in clinical remission at the time point of GCs discontinuation. Within 6 months after GCs withdrawal, 79.1% (91/115) of participants maintained relapse-free.

Figure 1. Kaplan-Meier curve with cumulative probability of glucocorticoids discontinuation in RA patients who start glucocorticoids with concomitant csDMARDs during the follow-up period. csDMARDs: conventional synthetic disease modifying antirheumatic drugs.

Conclusion: In RA patients commencing GCs in addition to csDMARDs, GCs are feasibly discontinued with favorable control of disease activity in real-life setting, mostly without short-term flare. Adding targeted therapies are sometimes required to attain GCs discontinuation within the time frame of 3 months in current guidelines.

REFERENCES:

- [1] Hoes JN, Jacobs JW, Buttgeit F, Bijlsma JW. Current view of glucocorticoid co-therapy with DMARDs in rheumatoid arthritis. *Nat Rev Rheumatol*. 2010 Dec;6(12):693-702. doi: 10.1038/nrrheum.2010.179.
- [2] Smolen JS, Landewé RBM, Bijlsma JWJ, et al. EULAR recommendations for the management of rheumatoid arthritis with synthetic and biological disease-modifying antirheumatic drugs: 2019 update. *Ann Rheum Dis*. 2020 Jun;79(6):685-699. doi: 10.1136/annrheumdis-2019-216655.
- [3] Conn DL. The Story Behind the Use of Glucocorticoids in the Treatment of Rheumatoid Arthritis. *Semin Arthritis Rheum*. 2020 Dec 17;51(1):15-19. doi: 10.1016/j.semarthrit.2020.09.016.

Disclosure of Interests: None declared

DOI: 10.1136/annrheumdis-2021-eular.3414

AB0142

SOCIOECONOMIC STATUS (SES) AND MEDICATION USE IN RHEUMATOID ARTHRITIS (RA): A SCOPING REVIEW

O. Russell¹, S. Lester¹, R. Black^{1,2,3}, C. Hill^{1,2,3}. ¹The University of Adelaide, Adelaide Medical School, Adelaide, Australia; ²Royal Adelaide Hospital, Rheumatology Unit, Adelaide, Australia; ³The Queen Elizabeth Hospital, Rheumatology Unit, Woodville South, Australia

Background: Socioeconomic status (SES) influences disease outcomes in rheumatoid arthritis (RA) patients. (1, 2) Differences in medication use could partly explain this association. (3) A scoping review was used to identify research conducted on this topic and determine what knowledge gaps remain.

Objectives: To determine what research has been conducted on this topic, how this research has defined SES and medication use, and establish what knowledge gaps remain.

Methods: MEDLINE, EMBASE and PsychInfo were searched from their inception until May 2019 for studies which assessed SES and medication use as outcome variables. Studies were included if they measured medication use and incorporated an SES measure as a comparator variable.

SES was defined using any of the "PROGRESS" framework variables (4) including patients' stated gender, age, educational attainment, employment, occupational class, personal income, marital status, health insurance coverage, area- (neighbourhood) level SES, or patients' stated race and/or ethnicity. Medication use was broadly defined as either prescription or dispensation of a medicine, medication adherence, or delays in treatment. Data was extracted on studies' primary objectives, measurement of specific SES measures, patients' medication use, and whether studies assessed for differences in patients' medication use according to SES variables.

Results: 1464 studies were identified by this search from which 74 studies were selected for inclusion, including 52 published articles. Studies' publication year ranged from 1994-2019, and originated from 20 countries; most commonly from the USA.

Studies measured a median of 4 SES variables (IQR 3-6), with educational achievement, area level SES and race/ethnicity the most frequently recorded.

Likelihood of disease modifying antirheumatic drug (DMARD) prescription was the most frequent primary objective recorded.

96% of studies reported on patients' use of DMARDs, with glucocorticoids and analgesics being reported in fewer studies (51% and 23% respectively.)

Most included studies found at least one SES measure to be significantly associated with differences in patients' medication use. In some studies, however, this result was not necessarily drawn from the primary outcome and therefore may not have been adjusted for covariates.

70% of published studies measuring patients' income (n=14 of 20) and 58% of those that measured race/ethnicity (n=14 of 24) documented significant differences in patients' medication use according to these SES variables, although the direction of this effect – whether it led to 'greater' or 'lesser' medication use – varied between studies.

Conclusion: Multiple definitions of SES are used in studies of medication use in RA patients. Despite this, most identified studies found evidence of a difference in medication use by patient groups that differed by an SES variable, although how medication use differed was found to vary between studies. This latter observation may relate to contextual factors pertaining to differences in countries' healthcare systems. Further prospective studies with clearly defined SES and medication use measures may help confirm the apparent association between SES and differences in medication use.

REFERENCES:

- [1] Jacobi CE, Mol GD, Boshuizen HC, Rupp I, Dinant HJ, Van Den Bos GA. Impact of socioeconomic status on the course of rheumatoid arthritis and on related use of health care services. *Arthritis Rheum*. 2003;49(4):567-73.
- [2] ERAS Study Group. Socioeconomic deprivation and rheumatoid disease: what lessons for the health service? ERAS Study Group. *Early Rheumatoid Arthritis Study*. *Annals of the rheumatic diseases*. 2000;59(10):794-9.

- [3] Verstappen SMM. The impact of socio-economic status in rheumatoid arthritis. *Rheumatology* (Oxford). 2017;56(7):1051-2.
- [4] O'Neill J, Tabish H, Welch V, Petticrew M, Pottie K, Clarke M, et al. Applying an equity lens to interventions: using PROGRESS ensures consideration of socially stratifying factors to illuminate inequities in health. *J Clin Epidemiol*. 2014;67(1):56-64.

Acknowledgements: This research was supported by an Australian Government Research Training Program Scholarship.

Disclosure of Interests: None declared

DOI: 10.1136/annrheumdis-2021-eular.3439

AB0143

THE EFFECT OF RHEUMATOID ARTHRITIS AND SPONDILOARTHRITIS ON PREGNANCY: A LONGITUDINAL RETROSPECTIVE COHORT STUDY

F. Pistillo¹, A. La Rosa², P. De Sandre³, E. Fracassi¹, G. Scanelli³, A. Carletto¹, A. Hoxha³. ¹University of Verona, Rheumatology Unit, Verona, Italy; ²San Bortolo Hospital, Department of Obstetrics and Gynecology, Vicenza, Italy; ³San Bortolo Hospital, Department of Medicine, Vicenza, Italy

Background: Many patients with rheumatoid arthritis (RA) and spondyloarthritis (SpA) are in their childbearing years. Concerns exist regarding the interplay between the rheumatic diseases and the pregnancy (1).

Objectives: Actually, there are contradictory data regarding the pregnancy outcome in patients with RA and SpA (2). Thus, we performed this longitudinal retrospective study to evaluate the effect of RA and SpA on pregnancy outcome.

Methods: The data of 78 pregnancies of 60 women followed from April 2017 to December 2020 at pregnancy clinic of Internal Medicine Unit, San Bortolo Hospital, Vicenza and Rheumatology Unit, University of Verona were reviewed. Fifty (64.1%) women were affected by RA and 28 (35.9%) by SpA. Information regarding demographic data, disease activity, drug exposure and maternal/foetal outcomes were collected in an electronic database. Details concerning pregnancy complications and congenital malformation were also collected. We compared pregnancy and foetal/neonatal outcome, medication use and disease activity between women affected by RA and SpA. Moreover, we evaluated the effect of disease activity on pregnancy outcome.

Results: Overall, there were 70 (86.4%) live births, 10 (12.3%) miscarriages and 1 (1.2%) foetal death. There were three twin pregnancies. Even there was a higher rate of glucocorticoids and bDMARDs use in RA than in SpA group, respectively 40% vs 21% and 70% vs 57.1%, there were no statistical differences regarding drug exposure at conception. Moreover, there were no differences concerning disease activity at conception. Still, a higher rate of glucocorticoids and bDMARDs, respectively 26% vs 10.7% and 46% vs 39.3% were used in RA than in SpA patients during pregnancy. Furthermore, we did not find any statistical differences regarding maternal and foetal/neonatal outcome between pregnancies in the RA and those in the SpA groups. There were four (4.9%), congenital malformation, two (3.8%) in RA group and two (6.9%) in SpA group. About one-third of patients 24 (30.7%) presented a moderate disease activity at conception as evaluated by DAS28PCR and BASDAI. However, there were no significant differences, on maternal and foetal/neonatal outcome in patients with moderate activity disease with respect of those in clinical remission.

Conclusion: Even a higher rate of glucocorticoids and bDMARDs were used in RA than in SpA patients, there was no differences on pregnancy outcome between them.

REFERENCES:

- [1] Ostensen M. *Nat Rev Rheumatol*. 2017;13:485-493. doi: 10.1038/nrrheum.2017.102.
- [2] Polachek et al. *J Rheumatol* 2020;47:161-163. doi: 10.3899/jrheum.190631.

Disclosure of Interests: None declared

DOI: 10.1136/annrheumdis-2021-eular.3486

AB0144

PREDICTIVE FACTORS OF SUSTAINED CLINICAL REMISSION IN RHEUMATOID ARTHRITIS

R. Fakhfakh¹, N. El Amri¹, K. Baccouche¹, H. Zegloui¹, E. Bouajina¹. ¹Farhat Hached Hospital, Rheumatology, Sousse, Tunisia

Background: Sustained remission (SR) is an ultimate treatment goal in the management of patients with rheumatoid arthritis (RA) (1) and is associated with better RA prognosis, reflected by the quality of life, physical function and radiographic progression (2).

Objectives: To investigate the prevalence and predictors of SR in RA patients.

Methods: A longitudinal prospective study of patients with RA. At the inclusion, the patients were in remission DAS28 ESR₁ ≤ 2.6 for at least 6 months. A B-mode and power doppler (PD) ultrasound of 42 joints and 20 tendons was performed. Synovial hypertrophy (SH) and tenosynovitis in B-mode and PD were defined and scored from 0 to 3 using the OMERACT. The CDAI, SDAI, Boolean remission criteria, the health assessment questionnaire (HAQ) and the radiological Sharp score were calculated. Then, the DAS28 erythrocyte sedimentation rate (ESR) was evaluated

at 6 and 12 months. SR was defined as the persistence of a DAS28 ESR₁ ≤ 2.6 at 6 or 12 months without any change in RA therapy during the follow-up. Unstable remission (UR) was defined either as DAS28 ESR₁ > 2.6 at 6 or 12 months or an increase in RA therapy because of a relapse during the follow-up.

Results: At baseline, thirty-seven patients were included. At 6 and 12 months, 28 and 24 patients completed follow-up, respectively. In decreasing order, Boolean remission (92.2%), DAS28 ESR₁ remission (85.7%), SDAI remission (85%) and CDAI remission (83.3%) achieved SR at 6 months. At 12 months, SR was found in 100% in Boolean remission, 87.5% in SDAI remission, 86.7% in CDAI remission and in 79.7% in DAS28 ESR₁ remission. At 6 months, only the ESR (17mm/1h in SR versus 32mm/1h in UR, p=0.04) was associated with SR. The disease duration, remission duration, swollen and tender joints, DAS28 ESR₁, HAQ, rheumatoid factor, radiological Sharp score and ultrasound parameters weren't associated with SR. At 12 months, the squeeze test (15% in SR vs 80% in UR, P=0.01), the ESR (15mm/1h in SR versus 30mm/1h in UR, p=0.03), the Boolean remission (61.1% in SR versus 0% in UR, p=0.04) and the DAS28 ESR₁ (mean: 1.8 in SR versus 2.5 in UR, P=0.01) were associated with SR. However, no association was found with radiological Sharp score and ultrasound parameters. On multivariate analysis, the ESR (OR=1.13, CI95%=1.01-1.2, p=0.03) and the Squeeze test (OR=21.3, CI95%=1.7-263, p=0.01) were predictors of SR, at 12 months. **Conclusion:** At 6 and 12 months, 79.7%-85.7% of patients in DAS28 ESR₁ remission achieved sustained remission, respectively. Boolean and DAS28 ESR₁ remission were associated with SR. Unlike DAS28 ESR₁, Boolean remission seems to reflect more the SR. The squeeze test and the ESR were predictors' factor. However, the radiological and the ultrasound parameters didn't show any association.

REFERENCES:

- [1] Ajeanov S, Huizinga T. Sustained remission in rheumatoid arthritis: latest evidence and clinical considerations. *Ther Adv Musculoskelet Dis*. 2017;9(10):249-62.
- [2] Xie W, Li J, Zhang X, Sun X, Zhang Z. Sustained clinical remission of rheumatoid arthritis and its predictive factors in an unselected adult Chinese population from 2009 to 2018. *Int J Rheum Dis*. 2019;22(9):1670-8.

Disclosure of Interests: None declared

DOI: 10.1136/annrheumdis-2021-eular.3555

AB0145

SMARTPHONE- AND SMARTWATCH-ACQUIRED DAILY STEPS, ACTIVITY, AND BAROMETRIC PRESSURES ASSOCIATED WITH SUBJECTIVE MEASURES OF RHEUMATOID ARTHRITIS: A PROSPECTIVE STUDY FOR RA DIGITAL PHENOTYPING

K. Izumi^{1,2,3}, D. Moriwaki^{3,4,5}, T. Toda^{5,6}, M. Higashida-Konishi², M. Koyama², H. Oshima², Y. Okano², Y. Kaneko¹, S. Ko^{3,5}, T. Takeuchi¹. ¹Keio University School of Medicine, Division of Rheumatology, Department of Internal Medicine, Tokyo, Japan; ²National Hospital Organization Tokyo Medical Center, Division of Connective Tissue Diseases, Tokyo, Japan; ³Keio University School of Medicine, Medical AI Center, Tokyo, Japan; ⁴CyberAgent, Inc., AI Division, Tokyo, Japan; ⁵Keio University School of Medicine, Department of Systems Medicine, Tokyo, Japan; ⁶AI Shift, Inc., Machine Learning Engineering, Tokyo, Japan

Background: Symptoms in patients with rheumatoid arthritis (RA) are potentially influenced by exercise load and meteorological change, and often vary from day to day, especially in unstable condition of RA. Patients with RA not infrequently experience worsening of joint symptoms when the load on the joint, such as walking and doing housework, exceeds a moderate range. However, the worsening of joint symptoms is often not observed in the midst of the loading of the joint, but often becomes apparent after a few hours or days.

Objectives: To elucidate the relationship between smartphone- and smartwatch-acquired daily objective data (barometric pressures, steps, and activity) and daily subjective patient reported outcomes of RA.

Methods: A smartphone (iPhone 8) and a wristband-type smartwatch (Fit-bit Versa 2) were lent to each patient for free. A mobile app was developed and installed into the smartphones to collect patients' daily subjective RA symptoms including Pt-P-VAS (patient-pain-visual analogue scale), Pt-G-VAS (pt-general-VAS), PtTJCCount(68)(patient self-determined tender joint count among 68 joints), PtTJCCount(28), PtSJCCount(66)(patient self-determined swollen joint count among 66 joints), PtSJCCount(28). Also, the smartwatch data and physicians' assessment were collected from the same subject. Physicians' and patients' assessment of TJC, SJC, and G-VAS was independently performed without seeing each other's assessment. We conducted a simple linear regression analysis with outcome variables of Pt-P-VAS, Pt-G-VAS, PtTJCCount(68), PtTJCCount(28), PtSJCCount(66), and PtSJCCount(28). The independent variables included smartphone-acquired daily steps and barometric pressure of the reported day and the previous day, and smartwatch-acquired minutes of "lightly active (1-3 METs equivalent)", "fairly active(3-6 METs equivalent)", and "very active(>6 METs equivalent)" of the reported day and previous day. We defined low barometric pressure as below 1000 hPa. The level of activity was measured by the smartwatch. Patients were blinded to daily barometric pressure data and their daily active time when the patients answered daily symptom questions on the smartphones.