escalate in RA populations, weight loss may be increasingly important to improve not only physical health, disease activity, and response to treatment, but also pain, fatigue, and PF.

References:

- [1] Colmegna et al. High rates of obesity and greater associated disability among people with rheumatoid arthritis in Canada. *Clin Rheumatol* 2016;35(2):457–60.

Acknowledgements: Funding: PCORI IP2-PI0000737 and SC14–1402–10818, CIHR 312205.

Disclosure of Interest: None declared

DOI: 10.1136/annrheumdis-2017-eular.5600

FRI0172 PREVALENCE AND FEATURES OF THE “MASKED” ARTERIAL HYPERTENSION IN WOMEN WITH RHEUMATOID ARTHRITIS WITHOUT CARDIOVASCULAR DISEASES BASED TO AMBULATORY BLOOD PRESSURE MONITORING

T.A. Romanova, N.M. Nikitina, A.P. Rebrov. *Hospital Therapy Department, State Medical University of Saratov, Saratov, Russian Federation*

Background: Cardiovascular (CV) events are the main reason of increased mortality at patients with rheumatoid arthritis (RA). Arterial hypertension (AH) takes a leading position among CV risk factors in RA. Ambulatory blood pressure monitoring (ABPM) has to be executed for persons with high cardiovascular risk and can be used for evaluation of “masked” arterial hypertension (MAH), according to the current recommendations.

Objectives: to estimate the frequency of identification and peculiarities of the MAH according to ambulatory blood pressure monitoring in women with RA without CV diseases.

Methods: The study included 36 women with RA (ACR 1987 and/or EULAR/ACR 2010 criteria) without CV diseases and AH (according to the anamnesis and 3-fold “office” blood pressure (BP) measurement). Mean age of RA patients was 55±7.15 years; mean duration of RA was 10 [3; 17] years, mean DAS 28 – 5.25 [4.6; 5.7]. As controls were involved 39 women with RA and AH (mean age 58.3±6.08 years; mean duration of RA - 8 [4;14] years, mean DAS 28- 5.08 [4.04; 5.85]) and 30 women with AH without inflammatory joint diseases (mean age 55.9±6.2). Exclusion criteria were smoking, diabetes mellitus, symptomatic AH (except controls), cardiovascular diseases.

ABPM was measured using the BPlab with the program VASOTENSE (Russian). Criteria for MAH were out-of-office BP ≥135/85 mmHg and/or average daily out-of-office BP ≥130/80 mmHg according to ABPM and considering optimal office BP.

The anamnesis, laboratory and instrumental methods of inspection were considered. Statistical analyze was performed with STATISTICA 7.0 (State Soft, USA).

Results: According to ABPM 24 of the 36 (66.6%) RA patients had optimal BP, 12 (33.3%) patients had the MAH phenomenon.

The patients with RA + AH and AH patients had the comparable levels of a daily BP [132.1/80.7 and 126.9/78.0 mmHg respectively, $p>0.05$].

The RA patients with MAH had statistically significant differences of BP in day and night hours [137.58/87 mmHg and 137/84 mmHg, respectively] compared to the RA + AH patients [132.1/80.7 mmHg and 128.3/73.8 mmHg, respectively, $p=0.004$] and AH patients [126.9/78 and 118/68.5 mmHg, respectively, $p=0.001$], what it is can be bound to absence of anti-hypertensive therapy at RA patients with MAH.

Nocturnal systolic BP correlated with ESR (Spearman's $r=0.64$, $p<0.05$). Daily diastolic BP interrelated with SCORE/EULAR ($r=0.86$, $p<0.05$) and arterial stiffness index ($r=0.86$, $p<0.05$) in RA patients with MAH; nocturnal systolic BP correlated with C-reactive protein ($r=0.36$, $p<0.05$) in RA+AH patients.

More than 60% of the RA+AH patients and RA+MAH had high variability of BP. High variability of nocturnal systolic BP occurred at 34.3% and 44.4% of RA+AH and RA+MAH patients, respectively.

In RA patients were found correlations between indices of a BP variability, duration of RA ($r=0.33$, $p<0.05$); C-reactive protein ($r=0.36$, $p<0.05$); daily diastolic BP ($r=0.35$, $p<0.05$); pulse BP ($r=0.31$, $p<0.05$); and frequency of non-steroidal anti-inflammatory drugs intake ($r=0.42$, $p<0.05$).

Conclusions: In RA patients AH can proceed subclinically. Activity of RA and increased arterial stiffness can predict the masked arterial hypertension's development in RA patients.

ABPM measurement can be use full in early evaluation of AH and optimization of RA treatment.

Disclosure of Interest: None declared

DOI: 10.1136/annrheumdis-2017-eular.5707

FRI0173 CORRELATION BETWEEN ASSYMETRIC DIMETHYLARGININE AND HOMOCYSTEINE LEVELS IN PATIENTS WITH RHEUMATOID ARTHRITIS

T. Dimitroulas^{1,2}, J. Hodson³, A. Sandoo⁴, K. Douglas¹, J. Smith¹, G. Kitas⁵.
¹Department of Rheumatology, Dudley Group of Hospitals NHS Trust, Russells Hall Hospital, Dudley, United Kingdom; ²4th Department of Internal Medicine, Aristotle University of Thessaloniki, Thessaloniki, Greece; ³Wolfson Computer Laboratory, University Hospital Birmingham NHS Foundation Trust, Queen

Elizabeth Hospital Birmingham, Mindelsohn Way, Birmingham; ⁴School of Sport, Health and Exercise Sciences, Bangor University, George Building, Bangor; ⁵Arthritis Research UK Epidemiology Unit, University of Manchester, Manchester, United Kingdom

Background: Rheumatoid Arthritis is a chronic inflammatory condition associated with increased cardiovascular disease (CVD) morbidity and mortality due to high coronary and cerebral atherosclerotic burden. Asymmetric dimethylarginine (ADMA) – the most potent endogenous inhibitor of nitric oxide synthase – is an emerging marker of endothelial dysfunction and CVD in several conditions such as coronary artery disease and diabetes mellitus. ADMA levels are higher in RA patients compared to controls suggesting a role in the development of atherosclerosis. In addition ADMA is involved in the metabolism of homocysteine (Hcy) which is considered a novel, non-traditional CVD risk factor contributing to excess CVD risk in this population.

Objectives: The aim of our study was to determine whether asymmetric dimethylarginine (ADMA) levels are associated with Hcy and methylenetetrahydrofolate reductase (MTHFR) C677T (rs1801133) gene variants in patients with RA.

Methods: Serum ADMA and Hcy levels were measured in 201 RA individuals [155 (77.1%) females, median age 67 years (interquartile range 59–73)]. The MTHFR C677T polymorphism was assessed by using the LightCycler™ System. Initially, ADMA was compared across the categories of MTHFR using a one-way analysis of variance (ANOVA), followed by a multivariate model, which accounted for Hcy, age, erythrocyte sedimentation rate (ESR), and homeostatic model assessment (HOMA).

Results: In univariable analysis, ADMA differed significantly across the categories of MTHFR ($p=0.037$). Patients with the MTHFR 677TT genotype had the highest ADMA levels, with a mean of 0.62 (SE =0.03), significantly higher than either those patients carrying the MTHFR 677CT (0.55, SE =0.01) or the MTHFR 677CC (0.55, SE=0.01) genotype ($p=0.042$) in both cases. In the multivariable model, Hcy ($p=0.022$) and ESR ($p<0.001$) were found to have significant positive associations with ADMA but the relationship between MTHFR gene variants and ADMA was found to be non-significant ($p=0.102$).

Conclusions: The results of our study indicate an association between ADMA and Hcy in patients with RA without any genetic background as no relationship was established between ADMA and MTHFR gene variants. Abnormal metabolism of Hcy and dimethylarginines may interfere with each other resulting in endothelial dysfunction and accelerated atherosclerosis in RA individuals.

References:

- [1] Dimitroulas T, Sandoo A, Hodson J, Smith J, Douglas K, Kitas G. MTHFR C677T Polymorphism but not DDAH gene variants are associated with Asymmetric Dimethylarginine (ADMA) in RA. *Ann Rheum Dis* 2014;72(Suppl 2):333.
[2] Perna M, Roman MJ, Alpert DR, Crow MK, Lockshin MD, Sammaritano L, et al. Relationship of asymmetric dimethylarginine and homocysteine to vascular aging in systemic lupus erythematosus patients. *Arthritis Rheum* 2010;62:1718–22.

Disclosure of Interest: None declared

DOI: 10.1136/annrheumdis-2017-eular.2512

FRI0174 A POPULATION BASED COHORT STUDY OF RHEUMATOID ARTHRITIS-ASSOCIATED INTERSTITIAL LUNG DISEASE: COMORBIDITY AND MORTALITY

C. Hyldgaard¹, O. Hilberg², A.B. Pedersen³, S.P. Ulrichsen³, A. Løkke¹, E. Bendstrup¹, T. Ellingsen⁴. ¹Department of Respiratory Diseases, Aarhus University Hospital, Aarhus C; ²Department of Medicine, Vejle Hospital, Vejle; ³Department of Clinical Epidemiology, Aarhus University Hospital, Aarhus; ⁴Department of Rheumatology, Odense University Hospital, Odense, Denmark

Background: Interstitial lung disease (ILD) is an important reason for excess mortality among patients with rheumatoid arthritis.

Objectives: The aim of this study was to compare mortality risks in patients with rheumatoid arthritis-associated interstitial lung disease (RA-ILD) and patients with RA without ILD.

Methods: The study was conducted in Denmark, using nationwide, prospectively collected data from the national medical registries. Among patients with RA, diagnosed between 2004 and 2016, 679 patients with RA-ILD were matched for age, gender, and age at RA diagnosis with 11,722 patients with RA but without ILD. Mortality risks were assessed using Kaplan-Meier survival curves, and hazard rate ratios (HRR) for death were estimated using Cox proportional hazards regression models.

Results: The number of prevalent RA patients more than doubled from 15,352 to 35,362 individuals during the study period. RA-ILD was seen in 2.2% of incident RA patients. 34.0% of RA-ILD cases were diagnosed within one year prior to and one year after the RA diagnosis. One-year mortality was 13.9% in RA-ILD and 3.8% in non-ILD RA, three-year mortality was 28.0% and 10.9%, and five-year mortality was 39.0% and 18.2%, respectively. The HRRs for death were two to 10 times increased for RA-ILD compared with non-ILD RA, irrespective of follow-up period. Stratified analysis showed that the HRR for death was highest in the first months after the diagnosis of RA-ILD was made, especially in patients diagnosed with RA before diagnosis of ILD. HRR was higher in males and in patients without comorbidity as assessed by the Charlson Comorbidity Index.

Conclusions: ILD is a serious complication in RA with a significantly increased mortality compared with a large matched cohort of RA comparisons without ILD.

Disclosure of Interest: None declared

DOI: 10.1136/annrheumdis-2017-eular.2848

FRI0175 USING SMARTPHONES TO IMPROVE REMOTE MONITORING OF RHEUMATOID ARTHRITIS: COMPLETENESS OF PATIENTS' SYMPTOM REPORTS

S. Van Der Veer¹, L. Austin^{1,2}, C. Sanders², W. Dixon¹. ¹Arthritis UK Centre for Epidemiology, Centre for Musculoskeletal Research, Faculty of Biology, Medicine and Health, Manchester Academic Health Science Centre, University of Manchester; ²Centre for Primary Care, Faculty of Biology, Medicine and Health, Manchester Academic Health Science Centre, University of Manchester, Manchester, United Kingdom

Background: Clinical decisions about management of rheumatoid arthritis (RA) happen at intermittent clinic visits. In the absence of objective measures of disease severity between visits, understanding fluctuating disease severity largely relies on patients' symptom reports, and thus on patients' recall, eloquence, stoicism and willingness to discuss symptoms.

The Remote Monitoring of Rheumatoid Arthritis (REMORA) study aims to improve monitoring of disease severity in RA. Patients, clinicians and researchers co-designed a smartphone app to enable RA patients to report daily symptoms in between clinic visits with data integrated into the electronic health record. The data presented here were collected as part of the REMORA feasibility evaluation. **Objectives:** To evaluate the completeness of patient-reported symptom data submitted through the REMORA smartphone app over three months.

Methods: We invited 23 RA patients treated at the outpatient clinic of Salford Royal Foundation Trust (UK) to record their symptoms for three months using the REMORA smartphone app. Participants received notifications to record: daily scores for the seven items of the RA Impact of Disease score, as well as morning stiffness on a scale from 0 to 10; weekly scores for thirteen items on 28 tender and swollen joint self-assessments, global assessment, impact on work and activity, and flare occurrence; and monthly scores for the Health Assessment Questionnaire (HAQ) 20-item disability scale. We calculated the time that participants were in the study as the number of days between the first and last day of submitting daily scores. We then explored patterns of data entry, as well as entry completeness.

Results: Twenty patients accepted the invitation to participate. Eight (40%) were male, all but one were white British, and their mean age was 56.9±11.1 years. The median number of days in the study was 82 (interquartile range [IQR], 80 to 82). While being in the study, participants submitted daily scores on almost all days (median, 91% of days; IQR, 78 to 95), with four doing this on <60% of study days. Across participants, almost all of 1325 daily entries were complete, with only nine (<1%) having missing values for up to two individual items. Participants submitted weekly scores for a median of 11 out of 13 weeks (IQR, 10 to 12). Of all 213 weekly entries, fifteen (7%) had missing values, but never more than two. Lastly, 8/20 participants provided monthly HAQ scores only once, while a further 9/20 and 3/20 participants did this for two and all three months, respectively. No monthly entries had any missing values.

Conclusions: Our feasibility study showed that smartphones have the potential to support collection of daily patient reports of symptoms with high levels of completeness over three months. Lengthier monthly question sets were less likely to be completed compared to briefer daily and weekly ones. Future steps include exploring methods for adapting data entry frequency to (fluctuations in) disease severity in order to support sustained symptom reports over longer time periods and in a wider group of patients.

Disclosure of Interest: None declared

DOI: 10.1136/annrheumdis-2017-eular.4243

FRI0176 CORRELATION BETWEEN DISEASE ACTIVITY AND MENTAL HEALTH IN CHINESE PATIENTS WITH RHEUMATOID ARTHRITIS-ASSESSMENT WITH SMART SYSTEM OF DISEASE MANAGEMENT (SSDM) MOBILE TOOLS

X. Li¹, H. Sun², R. Wu³, H. Wei⁴, W. Fan⁵, C. Zhao⁶, Z. Zhang⁷, Z. Wu⁸, Y. Wang⁹, J. Huang¹⁰, F. Xiao¹¹, H. Xiao¹¹, Y. Jia¹¹, M. Zhang¹². ¹Dept. of Rheumatology, Anhui Medical University Affiliated Provincial Hospital, Hefei; ²Dept. of Rheumatology, Shandong Provincial Hospital, Jinan; ³The First Affiliated Hospital of Nanchang University, Nanchang; ⁴Dept. of Rheumatology, Northern Jiangsu People's Hospital, Yangzhou; ⁵Dept. of Rheumatology, Central Hospital of XinXiang, XinXiang; ⁶Dept. of Rheumatology and Immunology, The First Affiliated Hospital of Guangxi Medical University, Nanning; ⁷Linyi people's Hospital, Linyi; ⁸Dept. of Rheumatology and Immunology, The First Affiliated Hospital of The Fourth Military Medical University, Xi'an; ⁹Dept. of Rheumatology and Immunology, The First Affiliated Hospital of BaoTou Medical College, Baotou; ¹⁰Dept. of Rheumatology and Immunology, The sixth Affiliated Hospital of Sun Yat-sen University, Guangzhou; ¹¹Medical Dept., Shanghai Gothic Internet Technology Co., Ltd., Shanghai; ¹²Dept. of Rheumatology and Immunology, Jiangsu Province Hospital, Nanjing, China

Background: Rheumatoid arthritis (RA) patients can cause joint swelling and

tenderness, and affect the patient's mental health. Previous studies showed that 13–47% of RA patients suffered from anxiety and/or depression. Hospital anxiety and depression scale (HADS) is usually used to evaluate patients' mental health, which consists of 14 items divided into an anxiety subscale (HADS-A) and a depression subscale (HADS-D). Disease activity score in 28 joints (DAS28) is one of the most used tool to assess RA patients' disease activity. Both HADS and DAS28 assessments were commonly led by health professionals with paper questionnaire. This study applies the mobile platform of Smart System of Disease Management (SSDM) for evaluating DAS28 and HADS by RA patients.

Objectives: The purpose of this study is to describe the morbidity of mental comorbidity in Chinese patients with RA and analyze the potential association among DAS28 and HADS.

Methods: SSDM is a mobile application includes physicians' and patients' interfaces. The patient's terminal system includes self-assessment (DAS28, HADS), lab test results and medication management. After data entry, patients can synchronize data to the mobile terminal of their authorized rheumatologist. A cohort study was conducted with patients who were diagnosed with RA in tertiary hospital across China. All participants self-assessed both DAS28 and HADS with SSDM at least one time. Descriptive statistics were performed for patient and disease characteristics, assuming normality for DAS28 distribution and the level of disease activity was analyzed using Pearson's statistics. One-way analysis of variance was employed to explore for difference between sub-groups. Bivariate correlation and linear logistic analysis were employed to explore for potential correlation between DAS28 and HADS.

Results: From June 2016 to January 2017, 230 patients (male 66, female 164) from 12 hospitals performed 311 times HADS and 517 times DAS28 self-assessment. The mean (±SD) age was 34.17±13.11 (11–71) years, with the median disease duration of 24.70 (0–572) months. As the standard of HADS score higher than 10, 31% and 37% patients could be diagnosed as anxiety and depression respectively. According to the DAS28 assessment results, the proportion of patients with remission, low disease activity, moderate activity and high activity were 18%, 19%, 46% and 18% respectively. Bivariate correlation showed that DAS28 was positively correlated with HADS, $p < 0.001$. Both HADS-A and HADS-D showed linear regression association with DAS28 score, the regression equation as "HADS-A = 5.962 + 0.435*DAS28" and "HADS-D = 6.379 + 0.694*DAS28" respectively, $p < 0.001$.

Conclusions: DAS28 was positively correlated with HADS. SSDM is an effective mobile interface to serve for RA patients performing self-management of both disease activity and mental health as well as to supply physicians with valuable data.

Disclosure of Interest: None declared

DOI: 10.1136/annrheumdis-2017-eular.4032

FRI0177 THE UNDERRATED PREVALENCE OF DEPRESSION IN PATIENTS WITH RHEUMATOID ARTHRITIS

R. Sruamsiri¹, Y. Kaneko², J. Mahlich¹. ¹Health Economics, Janssen Pharmaceutical KK, Tokyo, Japan; ²Department of Internal Medicine, Keio University School of Medicine, Tokyo, Japan

Background: Significant evidence in the scholarly literature suggests that depression is a common comorbidity among patients with rheumatoid arthritis (RA) (1) Comorbid depression in RA patients is especially troublesome because it often goes unrecognized and untreated (2) often because rheumatologists and their patients seldom communicate about depression (3). In addition, evidence of depression in RA patients is limited in Asia studies.

Objectives: To determine the prevalence of depression among patients with RA and explore the relationships between depression and an array of variables.

Methods: Cross-sectional online survey (n=500) of RA patients including the Patient Health Questionnaire [PHQ-9] (4) to measure the presence and severity of depressive symptoms were performed. The survey contained patient demographic, clinical characteristics such as functional impairment as assessed using the Japanese version of the Stanford Health Assessment Questionnaire (J-HAQ score), and the participant's current medical treatment. Ordered logistic regression was used to identify the determinants of depression conditions among survey respondents.

Results: The mean age of the 500 patients with RA was 54.3 years old and 67% were female. While only 25 (5%) of the population studied had been officially diagnosed with depression, 176 (35%) had PHQ-9 scores indicating depression was present. Comorbidity conditions, except for migraine and heart conditions, were not different between patients with depression and those without. Logistic regression analysis revealed a negative correlation between the prevalence of depression and younger age with odds ratio (OR) of 0.96 (95% confidence interval (CI); 0.93–0.98), higher education (OR, 0.60; 95% CI, 0.36–0.98 for a bachelor's degree or higher) and an income level of 0.8–1.6 million yen (OR, 0.45; 95% CI, 0.22–0.91). Positive correlations with depression was found in RA patients with high J-HAQ score (OR, 1.99; 95% CI, 1.47–2.71). Patients treated with biologic monotherapy were significantly less likely to have depression compared to those treated with non-biologic anti-rheumatic drugs (OR, 0.36; 95% CI, 0.17–0.75).

Conclusions: It is a potential risk of under-diagnosis and under-reporting of Depression in patients with RARA patients are more likely to experience depression if they are younger, have greater functional impairment, or whose treatment regimen includes pain medications without biologic drugs.