the development of accelerated atherosclerosis, leading to increased risk of cardiovascular disease (CVD), and increased mortality.

Objectives: This study aimed at examining changes in the risk of deaths, CVD and RA-related orthopedic surgeries between the patients treated with conventional synthetic and biologic disease modifying antirheumatic drugs (csDMARD and bDMARD) for RA during 1997–2011.

Methods: Two cohorts of severe RA patients and their matched controls were identified from National Health Insurance claims database. The csDMARD cohort was patients who had medication claim for cyclosporine $\geq$50 mg/day with concomitant use of $\geq$2 csDMARDs for $\geq$28 days within 56 days after cyclosporine use during 1997–2003 (N=1,569). After csDMARD cohort was determined, the bDMARD cohort was selected if patients had $\geq$1 claim for bDMARD during 2003–2011 (N=1,530). Adjusted hazard ratios (aHRs) for the risk of death, myocardial infarction (MI), stroke, and RA-related orthopedic surgeries were assessed between the two cohorts and their controls, respectively, using Kaplan-Meier survival curves and Cox proportional hazards models.

Results: RA patients using bDMARD showed a markedly decreased risk of death (aHR:1.05; 95% CIs=0.84–1.33) compared with RA patients using csDMARD (aHR:8.75; CIs=7.43–10.31). Also, bDMARD was associated with a reduced risk of stroke (aHR:0.37; CIs=0.22–0.62) compared with csDMARD (aHR:0.73; CIs=0.51–1.05). For RA-related orthopedic surgeries, risks were slightly lower for bDMARD (aHR:4.14; CIs=3.30–5.20) compared with csMARD (aHR:5.77;CIs=4.88–6.81).

Conclusions: The introduction of biologics in the treatment of RA has showed to have beneficial impact on improving clinical outcomes, including decreased risks of death, stroke and RA-related orthopedic surgeries.

References:
[1] Avina-Zubieta JA, et al. Ann Rheum Dis. 2012 Sep;71(9):1524–1529.
[2] Maradit-Kremers H, et al. Arthritis Rheum. 2005 Feb;52(2):402–411.

FRI0756-HPR   **EVALUATION OF MUSCULOSKELETAL COMPLAINTS ASSOCIATED WITH SMARTPHONE USE AMONG UNIVERSITY STUDENTS AND RELATED RISK FACTORS**

E. Tonga, B. Özgül, E. Timurtas, M. Can, Y. Hasırcı, M.G. Polat. *Marmara University, Faculty of Health Sciences, Department of Physiotherapy and Rehabilitation, Marmara University, Istanbul, Turkey*

Background: Smartphone use for long periods in a static and unsupported arm position could bring about abnormal alignment of upper limb and could cause postural problems and musculoskeletal pain. There are very few studies in the literature that examine the effect of smartphone use on musculoskeletal problems and related factors.

Objectives: The primary aim of our study was to determine the musculoskeletal complaint associated with smartphone use among university students. other purpose of the study was to investigate the relationships with smartphone type, smartphone use frequency, smartphone use posture, smartphone use addiction level and psychological stress.

Methods: 349 university students (240 women, 109 men; mean age 20.79±1,35) were included to our study. We conducted a survey that contains questions about students' smartphone usage patterns and habits. Nordic musculoskeletal Questionnaire was used to determine the musculoskeletal complaint associated with smartphone use. Working posture while using smartphone were evaluated with Rapid Upper Limb Assessment (RULA). Smartphone addiction level were determined with Smartphone Addiction Scale (SAS). Also we use the Beck Depression İnventory (BDI) to determine the psychological distress. Pearson correlation analysis were used to associations between parameters.

Results: Our results showed that university students had a high frequency of smartphone use and that the frequency was related to the level of addiction (r=0.199 p=0.00). %43 of students were use their smartphones extremely more than 4 hours. Students specified that they use their smartphones often for messaging with smartphone applications (%86.5). the most frequent symptoms were found in the neck (%59.6), shoulder (%51.82) and upper back (%54.4) regions. Statistically significant relationship was found between daily frequency of smartphone use and RULA neck posture score (r=0.170, p=0.001). Also there were statistically significant relationships found between BDI score and upper limb (r=0.15, p=0.005) and upper back (r=0.152, p=0.004) postures while using smartphone.

Conclusions: Smartphone users complain at least one area (neck, upper extremity, upper back). The frequency of smartphone use and addiction level is associated with abnormal postures while using smartphones which associated physiological distress. Consequently, musculoskeletal rehabilitation programs should include an analysis of preventive strategies which should be multifactorial with the team work of all health professionals.

References:
[1] Seong-Yeol Kim et al. Effect of duration of smartphone use on muscle fatigue and pain caused by forward head posture in adults. J Phys Ther Sci 2016;28:6.
[2] Junhyuk Park et al. The effects of heavy smartphone use on the cervical angle, pain threshold of neck muscles and depression Advanced Science and Technology Letters Vol.91.

[3] Shang-Yu-Yang et.al. Association between Smartphone use and Musculoskeletal Discomfort in Adolescent students. J Community Health 2016.

FRI0757-HPR   **NATURE OF JOINT INVOLVEMENT IN OSTEOARTHRITIS IN THE POPULATION: MULTI-JOINT OSTEOARTHRITIS, THE RULE NOT THE EXCEPTION?**

E.M. Badley, D. Millstone, A.V. Perruccio. *Division of Health Care and Outcomes Research, Krembil Research Institute, Toronto, Canada*

Background: While population studies usually consider undifferentiated osteoarthritis (OA), cohort and other studies of OA typically focus on OA characterized by a primary joint involved, most frequently the knee, hip or hand. Relatively little attention has been paid to the involvement of other joints.

Objectives: To investigate the extent of multi-joint involvement in a representative sample of the population with OA.

Methods: Analysis of data from the Survey on Living with Chronic Diseases in Canada, Arthritis Component. This was based on a nationally representative sample of people aged 20 or older reporting arthritis as a long term health problem, diagnosed by a health professional, in the parent Canadian Community Health Survey, 2008. Respondents were asked about their type of arthritis, extent of pain on a 0–10 scale, and the extent to which arthritis affected their life (not at all; a little; moderately; quite a bit; extremely). Participants were also asked to indicate which joints were painful. The joints asked about were the right and left hands, wrists, elbows, shoulders, hips, knees, ankles, feet, back and neck. Data on other reported chronic health conditions (heart disease, respiratory, high blood pressure, migraines, mood disorders, bowel disorder/ulcers, stroke, cancer, and diabetes) and body mass index (BMI) were obtained from the parent survey. Analysis was restricted to people reporting OA (n=1749).

Results: The mean age of the sample was 65 years, with 44% aged less than 65; 74% were women. Ninety-three percent reported joint pain in the previous month. The mean "average" pain score was 5.2/10 with very little variation by age and gender. Overall, 92% reported that their arthritis affected their life at least a little, with 24% reporting quite a bit or worse, similarly with little variation by age and gender. The most frequently reported joint sites (e.g. one or both knees) were the knee (58%), hands (49%), back (47%), and hips (42%). Overall the sample was characterized by multi-joint involvement: only 10% reported only one troublesome joint, and 17% only one site. The mean number of painful joints was 5.6 (ranging from 1 to 18: median 5), and the mean number of joint sites was 3.9 (median 3). Women reported more joints than men (mean 5.9 vs 4.8) but there was no significant trend by age. There was no significant trend in number of joints by BMI, although the number of co-occurring conditions was higher in people with more painful joints; 25% of those with only 1–2 joints had a 2 or more co-occurring conditions, compared to 43% of those with 5 or more joints.

Conclusions: Although the most frequently reported painful joints were the knee, hip or hand, few people reporting OA in this representative population-based sample had joint symptoms in that joint alone, suggesting that studies that focus only on a primary joint may be missing the point. The lack of association of mean number of joints with obesity was surprising given a postulated metabolic contribution to OA. The association with co-occurring conditions needs further investigation. A reappraisal of our understanding of OA appears to be warranted given that multi-joint involvement appeared to be the rule not the exception.

FRI0758-HPR   **CO-MORBIDITY PROFILE IN PATIENTS WITH RHEUMATOID ARTHRITIS. DATA FROM RHEUMATOID ARTHRITIS REGISTRY IN QATAR**

F. Alam, M. Hammoudeh, S. Al Emadi. *Rheumatology section Internal Medicine, Hmc Doha, Doha, Qatar*

Background: Comorbid conditions are frequently associated with rheumatoid arthritis (RA) which not only increase morbidity but also has impact on treatment and may shorten the life span of those patients.

Objectives: To study the prevalence of different comorbid conditions among patients with RA.

Methods: Data was collected from rheumatoid arthritis Registry in Qatar. Patients fulfilling 2010 ACR/EULAR criteria for RA were included in this observational study from period of June 2013 to November 2015. Data about Baseline demographics, treatment pattern, disease scores and details of comorbid conditions were recorded in this observational study

Results: Data of 496 patients was analyzed. Demographic and disease characteristic of our RA cohort was as follows: 75.8% were female, 74.9% were positive for rheumatoid factor, 79.8% were positive for anti CCP and 31.3% have erosion at the time of data collection. One hundred thirty patients (26.4%) were receiving biologic drugs, 71.8 were on synthetic DMARDS (either as monotherapy or different combination) and 39.7% were receiving concomitant steroid.

The most commonly associated comorbid conditions were hypertension (24.2%) followed by diabetes mellitus (20.6%), dyslipidemia 10.9%, hypothyroidism 10.9%, asthma and chronic obstructive disease 1.4%.

Steroid was used by 39.2% of patients with diabetes and hypertension. Cardiovascular events (Ischemic heart disease and ischemic stroke) occurred in 2.2% of patients and 45.5% of patients with cardiovascular events were receiving concomitant steroid. Infections requiring hospital visit were recorded in 1.8% of patients; 77.8% of patients with infection were on biologic DMARD and 33.3% were receiving concomitant steroid.

Out of Two hundred seventy six patients who underwent DXA scanning for estimation of bone mineral density, 48.6% were having decrease bone density (37% osteopenia, 11.6% osteoporosis).

Steroid use was significantly associated with decrease bone density.

Conclusions: Comorbid conditions are frequently associated with Rheumatoid arthritis as observed in our cohort of patients. Patient care should not be focused only on arthritis care. All RA patients should be screened for comorbidities and treated accordingly in order to avoid their deleterious effect on patient health.

Disclosure of Interest: None declared

DOI: 10.1136/annrheumdis-2017-eular.1899

FRI0759-HPR | **COLLABORATION BETWEEN GENERAL PRACTITIONERS AND RHEUMATOLOGISTS TO MANAGE CARDIOVASCULAR RISK IN PATIENTS WITH RHEUMATOID ARTHRITIS PATIENTS**

J. Weijers [1], S. Rongen-van Dartel [1,2], M. Hulscher [1], P. van Riel [1,2]. *[1] IQ healthcare, Scientific Institute for Quality of Healthcare, Radboud university medical center, Nijmegen; [2] Department of Rheumatology, Bernhoven, Uden, Netherlands*

Background: To reduce the risk of cardiovascular disease in rheumatoid arthritis (RA) patients, adequate cardiovascular risk management (CVRM) is necessary. CVRM implies assessment, treatment and monitoring of cardiovascular risk factors[1]. The updated EULAR guideline states that cardiovascular risk assessment should be considered at least once every five years in all patients with RA[2]. A few studies show suboptimal risk management in daily practice in selected groups of patients.

Objectives: This study aims to describe current performance of the CVRM recommendation in a hospital based RA population in the South of the Netherlands. In this region, general practitioners (GPs) and rheumatologists closely collaborate into manage RA patients' cardiovascular risk.

Methods: Due to the collaboration, CVRM is performed as a part of a transmural care program. The rheumatologist informs the GP when a patient has been diagnosed with RA. The patient is placed on a list for CVRM to be screened by a specialised nurse practitioner. As a part of the collaboration, laboratory results requested by the GPs and rheumatologists are collected in one digital patient record system. This system is used to check whether the RA patient's lipid profile was determined in the previous five years. If not, a letter with the listed patient is sent to the GP a reminder for screening the patient. In this study, we checked six months later whether lipid testing was ultimately performed.

Results: In 70% (n=475) of all 679 RA patients (mean age 63 (SD 9 years), 68% women and median disease duration of 7 years (IQR 3–11)) a lipid profile was determined in the previous five years.

Of the 204 non-screened RA patients, 98 had been screened after sending the letter to their GP (+48%), see Figure 1. No differences in gender and disease duration were found between the screened and non-screened patients (p=.46 and p=.25 respectively). By contrast screened patients were 10 years older compared to the non-screened patients (66 year (SD12) vs 56 (SD 15) year, p<0.0001).
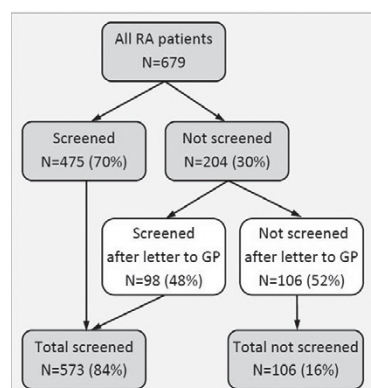
Figure 1 Flowchart screening all rheumatoid arthritis (RA) patients for their cardiovascular risk; results of sending a letter to general practitioners (GP).

Conclusions: As a result of the collaboration between GPs and rheumatologists, 70% of all RA patients was screened for CVRM. A small intervention, sending a reminding letter to the GP, increased this percentage even further, to 84%. This collaboration can be seen as a good practice to provide care in line with the EULAR guideline.

References:

[1] Barber CE et al. Best practices for cardiovascular disease prevention in rheumatoid arthritis: a systematic review of guideline recommendations and quality indicators. Arthritis care & research. 2015;67(2):169–79.
[2] Agca R et al. EULAR recommendations for cardiovascular disease risk management in patients with rheumatoid arthritis and other forms of inflammatory joint disorders: 2015/2016 update. Annals of the rheumatic diseases. 2016.

Disclosure of Interest: None declared

DOI: 10.1136/annrheumdis-2017-eular.2423

FRI0760-HPR | **BIOSIMILAR USE AMONG EUROPEAN RHEUMATOID ARTHRITIS PATIENTS AND IMPACT ON PATIENT OUTCOMES**

L. Chanroux, F. Mboge, A. Wadiwalla. *Therapy Watch, Research Partnership, London, United Kingdom*

Background: Biologic agents have been shown to help control disease progression in rheumatoid arthritis (RA) and significant reduce joint damage. However, their considerable cost has limited their widespread use.

Objectives: Biosimilars offers the opportunity for significant cost savings for national health services and the aim of this research is to better understand their use among European rheumatologists and their potential impact on patient outcomes.

Methods: We used data collected as part of an online treatment survey conducted among a panel of 261 rheumatologists between January and December 2016 across 5 European markets (France, Germany, Italy, Spain and the UK). Physicians were sampled to provide a representative mix of practice types and regions. Our record form sample included 9,650 patient currently treated with a bDMARD, 297 of which received a biosimilar. We split the sample into 2 groups, biosimilar patients = those treated with Benepali (etanercept), Remsima (infliximab), Inflectra (infliximab) and Flixabi (infliximab) and originator patients = those treated with Enbrel (etanercept) or Remicade (infliximab). We analysed patient demographic data along with current DAS, joint count, HAQ score and perceived disease severity to assess response to therapy over time.

Results: Biosimilars accounted for a total of 2.4% of our biologic sample with the greatest uptake of these agents reported in the UK (3.8%) and the lowest in France (1.6%). Use of biosimilars increased in patients who started their current biologic in 2016 (8.1%), with a marginally higher use seen in patients on their 2nd or higher line of bDMARD therapy vs. those on their 1st bDMARD (9.4% vs. 7.5%, respectively).

We saw no significant difference in the distribution of biosimilar and originator patients by age and gender although biosimilar patients appeared to have more severe disease. While a smaller proportion of biosimilar patients were perceived to have moderate/severe RA at diagnosis (79.1% vs. 88.4%) a greater proportion were thought to have moderate/severe disease at their latest visit (64.3% vs. 44.2%). The average DAS28 of biosimilar patients was higher at a directional level but their average HAQ score and tender/swollen joint count were non-significantly lower. Biosimilar patients were more likely to suffer from a comorbid condition (87.2% vs. 74.1%) and a autoimmune condition beyond their RA (17.2% vs. 11.6%). There were no significant differences in the proportion of patients unable to work due to their disease (4.3% on average from the total sample).

We analysed the data focusing solely on 1st line patients to reduce any bias introduced by previous lines of therapy but observed similar trends. A higher proportion of biosimilar patients were considered to have moderate to severe RA at their latest visit (67.9% vs. 43.0%) and a greater proportion of patients had a DAS28 >5.1 (23.3% vs.3.0%).

Conclusions: Our research suggests that biosimilar uptake remains limited amongst European rheumatologists with a directional trend towards 2nd line use. Our data did not clearly show any significant differences in the profile of biosimilar patients or their outcomes. Increased governance from healthcare regulators and additional clinical data may be needed to further establish the efficacy and safety of these agents and drive their wider use, ensuring greater cost efficiency and the potential for wider access to biologic therapies for RA patients.

Disclosure of Interest: None declared

DOI: 10.1136/annrheumdis-2017-eular.6598

FRI0761-HPR | **CHRONIC WIDESPREAD PAIN PREVALENCE IN THE GENERAL POPULATION: A SYSTEMATIC REVIEW & META-ANALYSIS**

P. Andrews, M. Steultjens, J. Riskowski. *Health and Life Sciences, Glasgow Caledonian University, Glasgow, United Kingdom*

Background: Chronic widespread pain (CWP) is a worldwide health problem and a significant contributor to disability. Understanding the impact of individual-dependent (e.g., gender) and contextual-dependent (e.g., survey method, latitude) factors have on CWP prevalence may provide a foundation population-based strategy for addressing CWP.

Objectives: To determine a general population worldwide estimate of CWP prevalence and to examine the individual and contextual-dependent factors related to CWP prevalence.

Methods: A systematic review was undertaken using seven databases. Along with data extracted from the manuscripts, additional contextual data including WHO development status and region, human development index (HDI; measure