session: (54–63 & 67–74; $p < 0.03$). Qualitative analysis mapped to previous themes will be summarised at the meeting.

Conclusions: It is feasible and effective to see new patients in a group setting with an experienced team. New patients group clinics have a powerful effect in empowering patients and may become an important option for hard to manage patients especially where resources are limited.

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FRI0639 THE IMPACT OF DISEASE ACTIVITY AND PAIN LEVEL ON PRODUCTIVITY IN RHEUMATOID ARTHRITIS (RA) PATIENTS

J. Galloway¹, J.-P. Capron², F. De Leonardi³, W. Fakhouri⁴, T. Burke⁵. ¹King's College Hospital, London, United Kingdom, ²Eli Lilly & Company, Brussels, Belgium, ³Eli Lilly & Company, Geneva, Switzerland, ⁴Eli Lilly and Company, London, ⁵HCD Economics, Daresbury, United Kingdom

Background: Rheumatoid arthritis (RA) is a disabling and progressive chronic autoimmune disease with associated burden in terms of work disability.

Objectives: To investigate the impact that RA associated pain and disease activity have on the level of work impairment patients experience, using data from the Burden of Rheumatoid Arthritis across Europe: a Socioeconomic Survey (BRASS).

Methods: Data were extracted from BRASS, a societal perspective observational RA dataset across 10 European countries (EU5, Denmark, Sweden, Hungary, Poland and Romania). 476 RA specialising clinicians provided information on 4,079 adult patients; of these, 2,087 patients completed corresponding questionnaires about the burden of RA. 646 patients were included in the analysis, having completed a patient questionnaire and with the physician having provided a DAS28-CRP score.

Descriptive analysis was used to explore the association between pain level, disease activity and productivity impairment due to RA. Summary measures were derived from BRASS data in which the Work Productivity and Activity Impairment Questionnaire was used to quantify impairment caused by the patient's RA, taking into account not only the proportion of time the patient is absent, but also the impact on their ability to perform their job. The relationship between disease severity (as measured by DAS28-CRP score), pain level (measured across 4 categories from 'no pain', 'mild', 'moderate' to 'severe pain') and overall work impairment was further explored using a generalised linear model where pain level and severity were modelled as explanatory variables against the overall work impairment outcome, while adjusting for covariates including age, gender and BMI.

Results: Of the 646 included in the analysis, average age was 54.6(14.1) years; mean (standard deviation), average DAS28-CRP score was 3.1(1.2), and average disease duration was 7(10) years; median (interquartile range). Descriptive analysis indicated that with greater levels of pain and/or disease activity, patients suffered increased levels of both work and activity impairment. The average marginal effect of covariates was calculated from regression outputs. Both pain level and DAS28-CRP score independently had a statistically significant association with work impairment; a unit increase in DAS28 score meant an increase in work impairment of 4.7% ($p=0.011$), whereas existence of 'mild', 'moderate' or 'severe pain' versus 'no pain' increased impairment by 33.3%, 43.4% and 45.0% respectively ($p < 0.05$), with confounders age, gender, BMI and either DAS28-CRP or pain level held constant.

Conclusions: Results from this large, multinational survey in Europe show that subjective domains of the disease, such as pain, could be as important as objective measures of RA activity in affecting a patient's ability to work; analysis suggested both pain and severity independently have a significant impact on work and activity impairment due to RA.

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FRIDAY, 15 JUNE 2018

Validation of outcome measures and biomarkers

FRI0640 AUTOANTIBODIES TO TWO NOVEL PEPTIDES IN SERONEGATIVE AND EARLY RHEUMATOID ARTHRITIS IN THREE LARGE INDEPENDENT COHORTS

L. De Winter¹, P. Vandormael¹, V. Stouten², H. W. van Steenbergen³, P. Geusens^{1,4,5}, J. Lenaerts^{6,7}, A. H. M. van der Helm-van Mil³, P. Verschueren², V. Somers¹. ¹Biomedical Research Institute, Hasselt University and transnationale Universiteit Limburg, School of Life Sciences, Hasselt, ²Skeletal Biology and Engineering Research Center, Department of Development and Regeneration, KU Leuven, Leuven, Belgium, ³Department of Rheumatology, Leiden University Medical Center, Leiden, Netherlands, ⁴ReumaClinic, Genk, Belgium, ⁵Rheumatology, Maastricht University Medical Center, Maastricht, Netherlands, ⁶Reuma Instituut, ⁷Jessa Hospitals, Hasselt, Belgium

Background: Despite recent progress in biomarker discovery for RA diagnostics, still over one third of RA patients are seronegative for RF and ACPA, a number which is even higher in early disease. In both the University of Hasselt (UH) cohort ($n=292$) and Leiden Early Arthritis Clinic (EAC) cohort ($n=600$), 38% of RA patients were seronegative for RF and ACPA. Testing for novel autoantibodies to UH peptides UH-RA.1 and UH-RA.21, reduced the serological gap from 38% to 29% in the UH cohort ($P=0.03$) and from 38% to 32% in the EAC cohort ($P=0.01$), with associated specificities in rheumatic controls ranging from 88–96%¹.

Objectives: Our aim is to validate the reactivities of autoantibodies against UH-RA.1 and UH-RA.21 peptides in early and seronegative RA patients from the CareRA cohort.

Methods: Peptide enzyme-linked immunosorbent assays have been developed to screen for the presence of antibodies to UH-RA peptides. Cut-off for seropositivity was defined by $2 \times$ SD above the mean antibody level of the healthy control group¹. Antibody reactivity to UH-RA.1 and UH-RA.21 was evaluated in baseline samples, collected before the start of treatment, of 223 early RA patients from the CareRA cohort.

Results: Antibodies to UH-RA.1 and UH-RA.21 were found in respectively 5% and 21% of the baseline samples from the CareRA cohort. These antibodies were found in similar levels in both RF/ACPA seropositive and seronegative patients. In the CareRA cohort, 24% of patients were seronegative for RF and ACPA and combining the presence of autoantibodies to UH-RA.1 and UH-RA.21 with RF/ACPA serology, reduced the seronegative population from 24% to 18% ($P=0.13$).

Conclusions: Screening for antibodies against novel UH peptides UH-RA.1 and UH-RA.21 has now been performed in three large independent cohorts. This study validates the presence of antibody reactivity to these UH-RA peptides in seronegative and early RA. This might reinforce current diagnostics and improve early diagnosis and intervention in RA.

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FRI0641 DETECTION OF CHANGES IN SLE DISEASE ACTIVITY IS HIGHLY IMPROVED WITH SLE-DAS AS COMPARED TO SLEDAI: DERIVATION AND PRELIMINARY VALIDATION OF THE SLE DISEASE ACTIVITY SCORE (SLE-DAS)

D. Jesus¹, A. Matos², C. Henriques², M. Zen³, A. Doria³, D. S. JAP^{1,4}, L. Inês^{1,4,5}. ¹Rheumatology Department, Centro Hospitalar e Universitário de Coimbra, Coimbra, ²Polytechnic Institute of Viseu, CI&DETS, Viseu, Portugal, ³Division of Rheumatology, University of Padova, Padova, Italy, ⁴Faculty of Medicine, University of Coimbra, Coimbra, ⁵Faculty of Health Sciences, University of Beira Interior, Covilhã, Portugal

Background: SLEDAI is a widely used instrument to measure disease activity of systemic lupus erythematosus (SLE). However, it lacks sensitivity to discriminate improvement/worsening as it only scores items categorically and does not include several relevant lupus features, such as hemolytic anemia.

Objectives: To derive and validate a SLE Disease Activity Score (SLE-DAS) with improved sensitivity to change, while maintaining the high specificity and simplicity of use of the SLEDAI.

Methods: 324 patients fulfilling ACR'97 and/or SLICC'12 classification criteria for SLE and regularly followed at a tertiary care lupus clinic from January 2014 to December 2017 were included. At each outpatient visit, clinical and laboratory data were collected and disease activity (last 30 days) was scored with Physician Global Assessment (PGA) (0–3 scale) and SLEDAI-2K. To derive the SLE-DAS