was no significant difference between SEC and ADA (HR=1.01, 95% CI: 0.88-1.15). In the multivariate sensitivity analysis, both UST (HR=0.81, 95% CI: 0.70-0.94) and SEC (HR=0.82, 95% CI: 0.70-0.95) were associated with significantly lower discontinuation rates ratio relative to ADA. Overall, patients with more biologic treatment experience were statistically significantly ($p<0.05$) associated with higher risk of treatment discontinuation.

Figure 1. Unadjusted Kaplan-Meier curves of time to treatment discontinuation (main analysis, dynamic grace period)

Conclusion: UST exhibits a favourable treatment persistency profile relative to ADA, regardless of the grace period definition. The relative risk of discontinuing SEC vs ADA is sensitive to the grace period. Treatment discontinuation was higher in treatment exposures with more biologic experience.

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OP0057

SEX SPECIFIC DIFFERENCES IN EARLY PSORIATIC ARTHRITIS

E. Passia¹, M. Vis¹, L. C. Coates², A. Soni², I. Tchetverikov¹, A. Gerards¹, L. A. Korswagen¹, M. R. Kok¹, W. Van der Graaff¹, J. Veris-van Dieren¹, N. Denissen¹, F. Fodili¹, M. Starmans¹, Y. Goekoop-Ruiterman¹, M. Van Oosterhout¹, J. Luime¹. ¹CICERO Foundation, Rotterdam, Netherlands; ²NDORMS, Uni of Oxford, Oxford, United Kingdom

Background: Although the prevalence of Psoriatic Arthritis (PsA) is the same in men and women, women experience a higher burden of disease (pain, disability, fatigue) (1). The persistent belief that women tend to over-report their symptoms compared to men may also contribute to under or delayed diagnosis in women. The clinical pattern of PsA also differs, with men presenting more commonly with peripheral and axial joint damage and women being affected more frequently by polyarthritis (2). Furthermore, most disease activity measures contain pain and quality of life measurement metrics that may perform differently by sex. As a result, this may affect the clinician's perception of disease severity, influence management decisions and subsequently introduce sex bias in prescribing.

Objectives: To assess sex-related differences in baseline demographics, disease characteristics and evolution over 1 year in patients with newly diagnosed PsA.

Methods: Our study is embedded in the Dutch south-west Early Psoriatic Arthritis prospective cohort study. We described patient characteristics using simple descriptive analysis techniques. For the comparison across sexes and baseline and 1 year follow up, appropriate tests depending on the distribution were used.

Results: 273 men and 294 women with no significant differences in age and ethnicity were included. Women reported significantly longer duration of symptoms before diagnosis and significantly fewer of them were in paid employment at baseline. Oligoarthritis was the most common pattern of arthritis in both sexes. Polyarthritis and enthesitis were more prevalent in women who also presented at baseline a significantly higher tender joint count (Fig.1) than men but no difference in swollen joint count.

Figure 1. Longitudinal evolution of TJCR8, Pain, VAS global, BRAF for men and women in the first year of PsA.

All composite indices (CPDAI, DAPSA, GRACE, MDA, Psoriatic Arthritis Disease Activity Score) showed significantly worse results in women at baseline. Women also suffered more frequently from comorbid medical conditions, fatigue and anxiety, and reported more severe limitations in function and worse quality of life.

At 12 months women, despite the improvement they made, reported significantly higher levels of pain compared to men. Although MDA rates increase over time for both sexes (Fig.2), it remained significantly more prevalent among men (19.0% vs 11.1% at inclusion, $p<0.05$, and 58.1% vs 35.7%, $p<0.00$, at T12). DAPSA was significantly higher in women at both timepoints and a significantly higher percentage of men presented remission according to DAPSA score at 12 months.

Figure 2. Longitudinal evolution of composite measures for men and women in the first year of PsA.

Conclusion: After 1 year of follow-up women didn't surpass their baseline disadvantages and despite the improvement, they still present higher disease activity, more pain and lower functional capacity than men. The nature of these findings may advocate a need for sex specific adjustment of treatment strategies and evaluation in psoriatic arthritis as sex-related difference in outcome persisted over time.

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OP0058-PARE **MY SJÖGREN'S DIARY: AN ONLINE PATIENT PORTAL FOR PATIENT LED SJÖGREN'S SYNDROME RESEARCH**

C. Burns¹, H. Breitmeyer¹, L. Cowley², S. Govind³, W. F. Ng⁴, T. F. Hiemstra^{2,5}.
¹British Sjögren's Syndrome Association, Cambridge, United Kingdom;
²Patient Led Research Hub, Cambridge, United Kingdom; ³Cambridge Clinical Trials Unit, Cambridge, United Kingdom; ⁴Newcastle University, Newcastle, United Kingdom; ⁵University of Cambridge, Medicine, Cambridge, United Kingdom

Background: Sjögren's Syndrome is a chronic autoimmune disease affecting the exocrine glands accompanied by variable extra-glandular manifestations. Symptom flares, including dry eyes, dry mouth, dry skin, fatigue, myalgia and arthralgia, are frequent. Many of these symptoms have a considerable impact on quality of life, but are variable, sensitive to external factors, and difficult to measure objectively.

Clinical research on Sjögren's Syndrome is advancing with the help of patient registries: an array of clinical data is collected and available for approved studies. However, many of these registries focus on collecting clinical information and often fail to capture the diverse patient experience adequately. Thus, there is an unmet need for an online 'patient portal', secure and encrypted with the capability of interacting with existing registries, while also patient-facing to encourage active involvement in research and personal healthcare. Patient demand for this resource was highlighted in 2017 when the Cambridgeshire regional support group of the British Sjögren's Syndrome Association (BSSA) contacted the Patient Led Research Hub (PLRH). The PLRH provides research expertise to co-produce research ideas with patient organisations¹; the PLRH and Cambridgeshire group have since secured funding and initiated work on this project with the Cambridge Clinical Trials Unit.

Objectives: Develop 'My Sjögren's Diary' a cross-platform patient portal to:

1. Act as an interactive tool to help patients manage their healthcare needs and aid communication with healthcare providers.
2. Function as a research platform, enabling patients to consent to contact, as well as support home-based data entry, allowing real-time capture of symptom scores and ensuring ease of participation for patients. Link with the UK Primary Sjögren's Syndrome Registry and NHS Digital to provide complementary clinical datasets.

Methods: The PLRH has coordinated a team of rheumatologists, database programmers, patients and family members to develop My Sjögren's Diary. Regular meetings, national surveys and correspondence with patients ensures the project remains relevant to patient needs, while collaborating with rheumatologists ensures the database is reliable, valid and of benefit to clinical care. Workshops hosted at key stages of database development have allowed both patients and rheumatologists to direct and refine My Sjögren's Diary. A prototype was presented at the 2019 BSSA Annual Conference before further improvements and beta release.

Results: A beta version of My Sjögren's Diary enabling BSSA members to track their medication and symptoms is now active. Feedback will be incorporated into the final version before it is publicly available to Sjögren's Syndrome patients. Further funding is required to develop the research platform.

Conclusion: My Sjögren's Diary encourages equal partnership between patients, clinicians and researchers. It presents a unique opportunity for comprehensive analysis of Sjögren's Syndrome and associated health utilities. Research participation is not mandatory, encouraging all patients to have an active role in personal healthcare management.

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Artificial intelligence and machine learning in imaging of rheumatology: Are we ready?

OP0059 **AUTOSCORA: DEEP LEARNING TO AUTOMATE SCORING OF RADIOGRAPHIC PROGRESSION IN RHEUMATOID ARTHRITIS**

T. Deimel¹, D. Aletaha¹, G. Langs¹. ¹Medical University of Vienna, Vienna, Austria

Background: The prevention of joint destruction is an important goal in the management of rheumatoid arthritis (RA) and a key endpoint in drug trials. To quantify structural damage in radiographs, standardized scoring systems¹, such as the Sharp/van der Heijde (SvdH) score², which separately assesses joint space narrowing (JSN) and erosions, have been developed. However, application of these scores is time-consuming, requires specially trained staff, and results are subject to considerable intra- and inter-reader variability¹. This makes their application poorly feasible in clinical practice and limits their reliability in clinical trials.

Objectives: We aim to develop a fully automated deep learning-based scoring system of radiographic progression in RA to facilitate the introduction of quantitative joint damage assessment into daily clinical practice and circumvent inter-reader variability in clinical trials.

Methods: 5191 hand radiographs and their corresponding SvdH JSN scores from 640 adult patients with RA without visible joint surgery were extracted from the picture archive of a large tertiary hospital. The dataset was split, on a patient level, into training (2207 images/270 patients), validation (1150/133), and test (1834/237) sets. Joints were automatically localized using a particular deep learning model³ which utilizes the local appearance of joints combined with information on the spatial relationship between joints. Small regions of interest (ROI) were automatically extracted around each joint. Finally, different deep learning architectures were trained on the extracted ROIs using the manually assigned SvdH JSN scores as ground truth (Fig. 1). The best models were chosen based on their performance on the validation set. Their ability to assign the correct SvdH JSN scores to ROIs was assessed using the unseen data of the test set.

Fig. 1. 3-step approach to automated scoring: joint localization, ROI extraction, JSN scoring.

Results: ROI extraction was successful in 96% of joints, meaning that all structures were visible and joints were not malrotated by more than 30 degrees. For JSN scoring, modifications of the VGG16⁴ architecture seemed to outperform adaptations of DenseNet⁵. The mean obtained accuracy (i.e., the percentage of