OP0101

EXPLORING PAIN AND THE IMPACT OF JIA ON ADOLESCENTS AND YOUNG ADULTS: A MIXED-METHODS STUDY

H Chaplin^{1,2}, Y. Ioannou^{2,3}, D. Sen², H. Lempp⁴, S. Norton¹. ¹Health Psychology Section, Institute of Psychiatry, Psychology and Neuroscience, King's College London; ²ARUK Centre for Adolescent Rheumatology, University College London; ³UCB Pharmaceuticals; ⁴Academic Rheumatology, King's College London, London, UK

Background: Young people with Juvenile Idiopathic Arthritis (JIA) have emphasised concerns about the extent to which factors beyond inflammation affect their daily lives, particularly with persistent pain, despite effective clinical management into adulthood. Pain experience and impact on daily life remains relatively unexplored in the adolescent and young adults (AYAs).

Objectives: This study aimed to: a) establish prevalence of current pain in AYAs with JIA, b) determine associations with pain intensity, and c) qualitatively explore perceived impact of JIA on daily life.

Methods: This cross-sectional mixed methods study recruited 85 JIA patients attending AYA Rheumatology clinics in London. It assessed pain intensity (APPT) as the primary outcome, with the following predictor variables: mood (HADS), illness perceptions (B-IPQ), fatigue (FACIT-F), functioning (WSAS), quality of life (MSK-HQ), demographics and disease activity. Analysis was conducted using Spearman's correlations and hierarchical multiple linear regression. Semi-structured interviews about the impact of JIA with a subset of 15 participants were conducted and analysed via inductive thematic analysis. Ethical/R and D approvals and informed consent were obtained.

Results: Participants completing the survey were predominantly female (68.2%), White British (65.9%), aged 16–25 (mean=19.63, SD=2.23), with Polyarticular (40%) the most common subtype, and 10.43 years mean disease duration (SD=5.16). Prevalence of current pain was 91.8%, with 37% reporting medium-to-severe pain. In interviews (66% female, 33% white British, mean age 19.92, mean disease duration 12 years), despite high prevalence, pain was only ranked fourth (6/15) as most impacting on daily life by those interviewed. The other top areas chosen were: fatigue (9/15), mood (8/15), social aspects (8/15), and impairments in functioning (5/15). Pain was reported in terms of impact on personal relationships (e.g. changes to mood linked to pain) and other restrictions preventing life as a 'normal' young person. In the survey, pain intensity was moderately associated with biological variables, e.g. active joints ($r_s=0.27$), and strongly associated with psychological variables, e.g. depression and illness related distress ($r_s=0.53$ and $r_s=0.50$). Demographic and clinical variables (Step 1) explained 13.4% of variance in pain intensity. Adding distress, fatigue and functioning (Step 2) explained an additional 24.8%, and illness perceptions (Step 3) explained a further 30.4%. Identity and Consequences illness perceptions accounted for 70.5% of the association between active joints and pain.

Conclusions: Findings support an approach of the biopsychosocial model of pain in clinical practice. The impact of JIA occurs during active disease but also persist during remission, going beyond pain and inflammation. These impacts need to be monitored by healthcare

Disclosure of Interest: None declared

DOI: 10.1136/annrhumdis-2018-eular.2599

OP0102

PROLONGED IMAGE ACQUISITION TIME AFTER CONTRAST AGENT ADMINISTRATION RESULTS IN INCREASED SYNOVIAL THICKNESS ON POST-CONTRAST MRI OF JIA PATIENTS: STANDARDISATION IS KEY

A.M. Barendregt¹, C. van Gulik², P. Groot¹, K. Dolman³, M. van den Berg⁴, A. Nassar Sheikh Rashid⁴, D. Schonenberg-Meinema⁴, C. Lavini¹, K. Rosendahl⁵, R. Hemke¹, T.W. Kuijpers⁴, M. Maas¹, C.M. Nusman¹. ¹Radiology and Nuclear Medicine, Academic Medical Center; ²Radiology and Nuclear Medicine, University of Amsterdam; ³Pediatrics, OLVG; ⁴Department of Pediatric Hematology, Immunology, Rheumatology and Infectious Disease, Emma Children's Hospital, Amsterdam, Netherlands; ⁵Section of Pediatric Radiology, Haukeland University Hospital, Bergen, Norway

Background: Timing of acquisition of post-contrast MR images for the assessment of the synovial membrane is important: delayed acquisition can result in

contrast washout into synovial fluid.¹ Several authors demonstrated the importance of this timing using qualitative data (membrane appearance on MRI).^{1–4} Nonetheless, there is no international consensus on timing of post-contrast images in arthritis, leading to acquisitions at 1 to 10 min after contrast injection.^{1–5} This could result in incorrect measurement of synovial thickness and thus imprecise assessment of disease activity and over or under treatment of patients.

Objectives: To quantitatively measure and compare thickness of the synovial membrane on early and late post-contrast knee MRI in patients with juvenile idiopathic arthritis (JIA).

Methods: Prospectively collected dynamic contrast-enhanced T1 MRIs of children with JIA were used to measure synovial thickness at time point 1 (TP1), 1 min and TP2, 5 min after contrast administration. Written and verbal informed consent for participation in our IRB-approved study was obtained. Two experienced readers, who were blinded for the time point, independently measured synovial thickness on a predefined, marked location in the patellofemoral compartment on randomised images. The Wilcoxon test was used to compare the mean synovial thickness measurements from TP1 and TP2. Moreover, we studied the number of patients judged to have active synovial inflammation (synovium >2 mm) on both time points.

Results: Measured synovial thickness in 53 patients with JIA (median age 13.5 years, 58.6% female) increased with prolonged time-after-contrast (TP1 1.4 mm and TP2 1.5 mm, $p<0.001$). Moreover, we found a 25% relative increase of patients with active synovial inflammation (synovial membrane >2 mm) when comparing the measurements at TP2 versus TP1.

Conclusions: Our study is the first to add quantitative data to the literature showing that synovial thickness as measured on post-contrast MRI increases with a prolonged interval between contrast administration and acquisition of the post-contrast images. Our data, together with previous studies^{1–4} indicate that it is questionable whether one can reliably measure synovial thickness without standardisation of the interval between contrast administration and acquisition of post-contrast sequences. This could not only influence clinical interpretation and quantitative scoring in JIA, but possibly also impacts other rheumatologic diseases in which synovial thickness is quantified in scoring systems, such as rheumatoid arthritis and osteoarthritis.^{6,7}

REFERENCES:

- [1] Østergaard, et al. *ARD* 2001;60:1050–1054.
- [2] Kursunoglu, et al. *Radiology* 1990;176(3):831–835.
- [3] Yamato, et al. *J CAT* 1993;17(5):781–785.
- [4] Rieter, et al. *Pediatr Radiol* 2016;46(11):1562–1567.
- [5] Johnson, et al. *Clin Radiol* 2002;57(6):466–471.
- [6] Østergaard, et al. *J Rheumatol* 2003;30:1385–1386.1.
- [7] Guermazi, et al. *Ann Rheum Dis* 2011;70(5):805–811.

Disclosure of Interest: None declared

DOI: 10.1136/annrhumdis-2018-eular.4780