Fig 1. Means and standard deviations for KIMRISS femoral BML scores in the medial and lateral compartment for the surgical and contralateral knee.

Fig 2. Probability plots for the 12-month change after surgery in femoral BML score in the medial (a) and lateral (b) compartments of the surgical knee. Change scores from each of the three raters is shown, as well as the average of all four raters.

UCB, Consultant of: WPM is Chief Medical Officer of CARE Arthritis Limited, has received consultant/participated in advisory boards for Abbvie, Boehringer, Celgene, Eli-Lilly, Galapagos, Gilead, Janssen, Novartis, Pfizer, UCB, Speakers bureau: Received speaker fees from Abbvie, Janssen, Novartis, Pfizer, UCB., Robert G Lambert: None declared, Stephany Pritchett: None declared, Frank

Beier: None declared, J. Robert Giffin: None declared, Thomas Appleton Grant/ research support from: AbbVie and Pfizer

DOI: 10.1136/annrheumdis-2020-eular.2002

OP0066

IMAGING-DETECTED FEATURES OF HAND OSTEOARTHRITIS ASSOCIATE WITH SYMPTOMS AND RADIOGRAPHIC CHANGE OVER TIME: A SYSTEMATIC REVIEW AND META-ANALYSIS OF OBSERVATIONAL STUDIES

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Background: Osteoarthritis (OA) commonly affects joints in the hand. The natural history of hand OA is not well understood, and the local determinants of symptoms and structural changes over time remain unclear.

Objectives: To investigate, in both cross-sectional and prospective studies, the association between imaging (ultrasound [US] and magnetic resonance imaging [MRI]) features and symptoms of hand OA, and to examine in prospective studies whether imaging-detected features at baseline predict subsequent clinical and radiographic outcomes.

Methods: A systematic literature search was conducted in five databases including Medline, Web of Science, EMBASE, CINAHL and AMED in April 2018. The search was designed to capture published observational studies on the use of US and MRI in hand OA with no language restrictions. Odds ratios (OR), risk ratios (RR), and 95% confidence interval (CI) between [1] imaging features and hand OA symptoms at baseline, and [2] baseline-imaging features and follow-up outcomes were extracted and pooled using random effects model. Outcomes were defined as either incidence or progression of pre-existing features. Risk of bias assessment was performed using the Newcastle-Ottawa Scales. Heterogeneity and publication bias were assessed.

Results: The search identified 2818 citations, which reduced to 2216 after duplicate removal. Screening of titles and abstracts found 140 articles which met the inclusion criteria. After full text screening, 25 were included for analysis, including 452 participants (87% women) for US and 298 participants (86% women) for MRI with mean ages 60.3 and 62.5, respectively. Imaging-detected structural OA features were preferentially found in distal interphalangeal joints (DIPJs) followed by carpometacarpal (CMCJ) and proximal interphalangeal (PIPJ) joints. Metacarpophalangeal joints were least affected. However, the distribution pattern was different for inflammatory features for which the CMCJ was the most affected, and with no clear difference between DIPJs and PIPJs (Figure 1).

Figure 1. Hand map of grey-scale synovitis derived from pooled estimates of prevalence across studies (%[95% CI])

Of 10 US and 5 MRI studies examining association at baseline, joint tenderness was associated with US osteophytes (pooled ORs 2.30, 95% CI 1.90-2.79), grey-scale synovitis (3.00, 2.33-3.84), synovial effusion (2.92, 2.29-3.72), and power Doppler (PD) (2.30, 1.68-3.15). Similar relationships were observed with MRI features (Figure 2). Six studies did not find any association between imaging features and self-reported outcomes. However, association was observed with US- and MRI-detected synovitis in one study each, and MRI-detected structural features in two. Statistical pooling was not possible for these outcomes due to heterogeneous data.

Of the 9 US and 5 MRI studies for prediction, a dose-dependent relationship was observed between baseline PD and radiographic change at follow-up (Figure 3). Similar results were observed for MRI features and Kellgren-Lawrence change. The pooled ORs (95% CI) was 2.66 (1.88, 3.78) for bone marrow lesions, and 2.18 (1.53, 3.10) and 4.7 (3.08, 7.18) for grades 1 and 2 synovitis, respectively. Data to predict change in clinical outcomes however, were lacking.

Figure 2. Forest plot showing pooled odds ratio between baseline magnetic resonance imaging features of hand osteoarthritis and joint tenderness.

Figure 3. Forest plot showing pooled odds ratio between baseline power Doppler and radiographic change over time

Conclusion: Imaging-detected inflammatory features and osteophytes associate with joint tenderness. In addition, imaging-detected inflammatory changes at baseline predict future development and progression of structural OA changes, indicating that inflammation may precede radiographically-detectable structural changes.

Disclosure of Interests: Abasiama Obotiba: None declared, Subhashisa Swain: None declared, Jaspreet Kaur: None declared, Khalid Yaseen: None declared, Michael Doherty Grant/research support from: AstraZeneca funded the Nottingham Sons of Gout study, Consultant of: Advisory boards on gout for Grunenthal and Mallinckrodt, Weiya Zhang Consultant of: Grunenthal for advice on gout management, Speakers bureau: Bioiberica as an invited speaker for EULAR 2016 satellite symposium, Abhishek Abhishek Grant/research support from: AstraZeneca and OxfordImmune, Speakers bureau: Menarini pharmaceuticals

DOI: 10.1136/annrheumdis-2020-eular.2342

Epidemiology

OP0067

CUMULATIVE ANTIBIOTIC USE AND THE RISK OF DEVELOPING ANKYLOSING SPONDYLITIS: A POPULATION-BASED CASE CONTROL STUDY

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Background: Recent studies show possible mechanisms of microbiota alterations that lead to the development of Ankylosing spondylitis (AS). These disturbances in the microbiota can be caused by long-term and high dose intake of antibiotics

Objectives: To analyze the association between antibiotic/s use and the risk of developing AS.

Methods: Population based case-control study using electronic medical records data from SIDIAP, covering >80% of the population in Catalonia, Spain. AS diagnoses with 2+ years data available were matched to up to 5:1 controls of same age, sex, and GP practice, and similar follow-up. Tracking of antibiotic use in the previous two years was done through pharmacy dispensation data standardized with ATC codes, and categorized in terms of recency of use and quartiles of cumulative dose. Adjusted odds ratios were estimated using conditional logistic regression analyzing antibiotic use (yes/no), recency of intake (current, recent, past, no use) and cumulative dose (quartiles of daily defined doses in the previous two years). All analyses were adjusted for age, body mass index, smoking, co-morbidity, socio-economic deprivation and number of GP visits as a proxy for healthcare resource use.

Results: The study included 4,493 cases diagnosed with AS and 22,016 controls. 46.3% of cases and 28.2% of controls had taken antibiotics. An association between taking beta-lactams (OR 1.18 [95% CI: 1.09-1.28]) and taking macrolides (OR 1.34 [95% CI: 1.18-1.52]) and getting diagnosed with AS was found. This association was stronger with current/recent use (Figure 1), but no dose-response pattern was seen (Figure 2).

Figure 1. Recency of use and AS diagnosis.

Figure 2. Cumulative use and AS diagnosis