Workshop 1D: Insights Related to the Factors That Promote Systemic Autoimmune Rheumatic Diseases and Novel Biomarkers Associated with Them

WORKSHOP1D_01

The Forgotten Costs of SLE: Estimating Indirect Costs in a National SLE Cohort

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Objectives: Economic analyses of SLE often include only direct healthcare costs. Indirect costs, particularly from lost productivity in unpaid labour, are often overlooked, especially relevant for a disease disproportionately affecting women. We assessed indirect costs due to lost productivity in both paid and unpaid labour, stratified by gender, in a national multi-centre SLE cohort.

Methods: Patients fulfilling ACR or SLICC SLE Classification Criteria completed a validated questionnaire on lost productivity. Total indirect costs included: 1) absenteeism (time lost from paid labour because of illness), 2) presenteeism (degree of productivity impairment in paid/unpaid labour), 3) opportunity costs (additional time patients would be working in paid/unpaid labour if not ill). Opportunity costs were calculated as the difference between the time patients worked versus an age, sex, and geographic-matched general population in paid and unpaid labour. Indirect costs from paid and unpaid labour were valued using age-and-sex-specific wages from Statistics Canada. The association of gender with annual indirect costs was assessed (adjusted for race/ethnicity, age, disease duration, and the SLICC/ACR Damage Index [SDI]) using random effects linear regression modelling.

Results: 1804 patients participated, 90.8% female, 66.9% white, mean age at diagnosis 33.7 (SD 13.9) years, mean SLE duration 14.7 (11.7) years, and mean SDI 1.3 (range 0-12.0). Patients were followed a mean of 4.9 (range 1.0-9.6) years with 48.9% employed (49.5% among females, 44.0% among males) at the initial and 37.0% (37.1% among females, 36.7% among males) at the final observation. Overall, total annual indirect costs were $36 405 (absenteeism: $829; presenteeism in paid labour: $4624; presenteeism in unpaid labour: $8922; opportunity costs in paid labour: $8512; opportunity costs in unpaid labour: $13 519). Among women, opportunity costs from unpaid labour were 38.8% ($14 175/$36 538) and from paid labour 21.3% ($7802/$36 538) of total indirect costs; among men, opportunity costs from unpaid labour were 19.3% ($6765/$35 064) and from paid labour 44.7% ($15 685/$35 064) of total indirect costs (Figure 1). Regression modelling showed that women incurred higher opportunity costs from unpaid labour (coefficient $7309, 95%CI $3514, $11 105), and lower opportunity costs from paid labour (coefficient -$8336, 95%CI -$12 524, -$4147).

Conclusion: Indirect costs, particularly from unpaid labour, are substantial, especially in

women, where they represent 38.8% of total indirect costs versus 19.3% in men. Hence, economic analyses weighing costs and benefits of novel/emerging therapies should incorporate costs resulting from lost productivity, particularly important for a disease that disproportionately affects women.

WORKSHOP1D_02

Overweight and Obesity Are Key Modifiable Risk Factors for Adverse Outcomes in Systemic Lupus Erythematosus Pregnancies

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Objectives: To determine if overweight (25-29.9 kg/m2) or obese (≥30 kg/m2) baseline body mass index (BMI) conferred higher adverse pregnancy outcomes (APO) risk compared to BMI <25 kg/m2 in a prospective systemic lupus erythematosus (SLE) pregnancy cohort.

Methods: We enrolled pregnant SLE women at <17 weeks gestation at 5 Systemic Lupus International Collaborating Clinics centres in Canada and South Korea. We collected data on demographics, obstetrical history, SLE characteristics, baseline co-morbidities, and APO at each of the 2nd trimester, 3rd trimester, and end-of-pregnancy (8-12 weeks) visits. APO included: 1) fetal death >20 weeks gestation, 2) neonatal death due to preterm birth and/or placental insufficiency, 3) preterm delivery or termination <36 weeks due to placental insufficiency, gestational hypertension, preeclampsia, and/or eclampsia, and 4) small-for-gestational-age (<5th percentile). We assessed the proportion of APO across the different BMI groups. We conducted a multivariate analysis using the Korean BMI classification for pregnancies from Asian mothers [obese (BMI ≥25 kg/m2), overweight (BMI 23-24.9 kg/m2), and normal weight (BMI <23 kg/m2)].

Results: We analyzed 80 completed pregnancies, with a mean maternal age of 33.9 years (standard deviation, SD 4.1) and BMI of 26.0 kg/m2 (SD 6.7). Almost half (40%) of pregnancies had a maternal BMI ≥25 kg/m2. Non-Hispanic Whites made up 40% of the pregnancies and more than half (56%) of pregnancies with a maternal BMI ≥30 kg/m2 (Table 1). Overall, APO occurred in 8 (10%) pregnancies. The proportion of APO was 19% [95% confidence interval (CI) 0, 38%] in both the BMI 25-29.9 kg/m2 and BMI ≥30 kg/m2 groups and 4% (95% CI 1, 12%) in the BMI <25 kg/m2 group. In univariate analysis, there was more than a 5-fold increased risk of APO in pregnancies with maternal BMI ≥25 kg/m2 versus those with BMI <25 kg/m2 [odds ratio (OR) 5.31; 95% CI 1.00, 28.24]. In multivariate analysis, using the Korean BMI classification for all Asian mothers and adjusting for race and antiphospholipid antibody status, overweight and obese pregnancies had a substantially increased risk of APO compared to those with normal weight (OR 6.32; 95% CI 1.25, 32.0).

Conclusion: Overweight and obese SLE women had higher APO risk compared to those with

normal weight. High BMI may be a modifiable risk factor for APO in women with SLE.
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04WORKSHOP1D_03

Does the Time to the Onset of Lupus Nephritis Impact Renal Disease Presentation and Outcomes?

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Objectives: Lupus nephritis (LN) most commonly develops in the initial years after the onset of systemic lupus erythematosus (SLE). In this study, we aimed to investigate the impact of the time to LN onset on the clinical presentation and outcomes of LN.

Methods: We included 246 inception cohort patients who developed LN at the time of clinic entry or during follow-up. We categorized patients into three groups based on the time to LN onset: group 1 (early, ≤1 year, 160 patients), group 2 (intermediate, >1 to ≤5 years, 42 patients), and group 3 (delayed, >5 years, 44 patients). The outcomes assessed were complete proteinuria recovery (CPR) at one year, the occurrence of an adverse composite outcome (end-stage kidney disease [ESKD], a sustained ≥40% decline in estimated glomerular filtration rate [GFR], or death), and the development of subsequent LN flares. Kaplan-Meier (KM) curves with log-rank tests, as well as univariable and multivariable Cox proportional hazard models, were conducted to assess the associations between the outcomes and the study groups.

Results: At baseline, the median [IQR] age of our cohort was 34.3 [26.2, 44.7] years, with a median disease duration of 0.6 [0.2, 2.6] years. Delayed LN patients were older at baseline (LN onset), had higher (SLICC)/ACR Damage Index (SDI), and used immunosuppressives less frequently. They were the least likely to achieve CPR at 1 year (53.9% for early LN vs. 47.6% for intermediate LN vs. 27.9% for delayed LN, p=0.01). Intermediate LN patients had the highest odds of experiencing an adverse composite outcome (27.5% for early LN vs. 50.0% for intermediate LN vs. 40.9% for delayed LN, p=0.01) on long-term follow-up (median of 8.5 [4.2, 15.5] years, with 2401 patient-years), with no significant difference in subsequent flares. In the KM curves, intermediate LN was associated with the shortest time to the adverse composite outcome (7.2 [2.9, 12.5] years for early LN vs. 4.4 [1.6, 14.3] years for intermediate LN vs. 7.0 [1.6, 13.9] years for delayed LN, p=0.02), with no significant differences in time to subsequent flares, [Figure 1 A-B]. In the Cox proportional hazard models, compared to early LN, intermediate LN was associated with a heightened risk of developing the adverse composite outcome and showed a trend towards a higher association with subsequent LN flares.

Conclusion: Intermediate LN, occurring one to five years after SLE onset, is associated with the worst renal outcomes.

WORKSHOP1D_04

Sialic Acid Binding Ig-Like Lectin 1 is a Biomarker of Disease Activity in Autoimmune Inflammatory Myopathies

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Objectives: Sialic acid binding Ig-like lectin 1 (SIGLEC1) is an adhesion molecule expressed on monocytes and macrophages, a surrogate marker for the Type I Interferon pathway, and a candidate biomarker for several autoimmune diseases. This study aimed to investigate serum SIGLEC1 levels as a novel biomarker for (1) disease activity in autoimmune inflammatory myopathies (AIM); and (2) clinical AIM manifestations.
Methods: AIM patients enrolled in a multi-site study registry with routine venipuncture samples bio-banked at baseline visits were included. Baseline clinical data were utilized. Sera were tested for SIGLEC1 using a capture immunoassay (Aviva Systems Biology, San Diego CA). The physician global disease activity assessment (PGA), which ranges from 0 (no disease activity) to 10 (very severe disease), was used to rate overall disease activity in AIM patients classified as having active (PGA ≥2) or inactive (PGA <2) disease. Patients were also classified as having active or inactive disease for six individual organ systems included in the myositis disease activity assessment visual analogue scales tool (MYOACT): constitutional, cutaneous, skeletal, gastrointestinal, pulmonary, and cardiac. SIGLEC1 concentrations (ng/mL) were compared between patients with active and inactive disease and those with and without AIM-specific manifestations using t-test.
Results: 87 AIM patients (32.2% male, median age 57.0 ± 19 years) with dermatomyositis (DM, n=38), polymyositis (PM, n=7), antisynthetase syndrome (AS, n=2), immune-mediated necrotizing myopathy (IMNM, n=5), inclusion body myositis (IBM, n=10), overlap (n=20), and other myopathies (n=4) were included. Higher SIGLEC1 concentration differentiated active from inactive disease in AIM (mean difference 2.7 ng/mL, 95% CI: 0.7-4.8, $p<0.05$) and DM (mean difference 4.0 ng/mL, 95% CI: 0.3-7.5, $p<0.05$). Higher SIGLEC1 concentrations were found among patients with cutaneous (mean difference 1.7 ng/mL, 95% CI: 0.1-3.4), skeletal (mean difference 2.0 ng/mL, 95% CI: 0.1-3.9), and gastrointestinal (mean difference 2.2 ng/mL, 95% CI: 0.5-3.9) involvement compared to patients without these features.
Conclusion: SIGLEC1 is a promising biomarker for assessing disease activity in AIM, particularly DM, and is associated with the presence of cutaneous, skeletal, and gastrointestinal clinical features. The candidacy of SIGLEC1 as a novel AIM biomarker requires further investigation and validation in a larger cohort of AIM patients. Future studies are underway to validate these findings and evaluate SIGLEC1 as a predictor of overall AIM disease activity during the course of the disease.

WORKSHOP2G_01

Childhood Onset Systemic Lupus Erythematosus: Pregnancy and Birth Outcomes in Ontario

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Objectives: Childhood onset systemic lupus erythematosus (cSLE) is a chronic, multi-system, autoimmune disease. Pregnancy and birth outcomes of cSLE are not well understood. Our objectives were to describe and evaluate pregnancy, neonatal, and maternal outcomes among female cSLE patients in Ontario, and to identify demographic and disease characteristics associated with adverse outcomes.

Methods: A population-based retrospective cohort study linked clinical data for eligible female cSLE patients diagnosed between 1985 and 2011 and followed for ≥1 year from date of diagnosis to March 31, 2023 with multiple health administrative datasets housed at the Institute for Clinical Evaluative Sciences. Descriptive statistics, adjusted, and univariate analyses were used to determine significant associations between risk factors (including demographic and early disease characteristics) and adverse outcomes.

Results: 489 female cSLE patients were diagnosed between 1985-2011 and followed for 16.8±7.2 years. A total of 423 pregnancies occurred in 175 women. 131 women had at least one live birth while 44 had no live births. 46.1% pregnancies resulted in fetal death (including still birth, miscarriage or abortion), 32% of live births were preterm, and 33.3% of neonates were admitted to neonatal intensive care [see Table 1]. Our adjusted analysis shows that patients who were older at time of cSLE diagnosis have lower odds of fetal death [OR= 0.87, 95% CI (0.78-0.97)], after controlling for years since cSLE diagnosis, ethnicity, income, anti-dsDNA antibodies, and biopsy-proven lupus nephritis. Our univariate analyses show that odds of preterm birth are higher for patients with non-white ethnicity [OR=2.43, 95% CI (1.22–4.85)], anti-Sm antibodies [OR=2.82, 95% CI (1.43–5.56)], and biopsy-proven lupus nephritis [OR=2.51, 95% CI (1.27–4.98)].

Conclusion: Investigating pregnancy, neonatal, and maternal outcomes is crucial for providing targeted health care for cSLE patients and their newborns. Factors such as age at diagnosis, non-white ethnicity, and early disease characteristics like anti-Sm antibodies, and biopsy-proven lupus nephritis are significantly associated with adverse pregnancy and birth outcomes. Understanding these associations will enhance patient care and improve health resource management.

WORKSHOP2G_02

Elevated Serum Brain Injury Markers Correlate with Disease Features and Interferons in Children with Systemic Lupus Erythematosus

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Objectives: Childhood-onset systemic lupus erythematosus (cSLE) involves interferon (IFN)-mediated inflammation emerging during the critical period of adolescent brain development. Neuropsychiatric lupus (NPSLE) manifests as syndromes like cognitive dysfunction, seizures, and psychiatric disorders. Clinicians face challenges diagnosing/treating brain inflammation in cSLE, due to suboptimal diagnostic tools. Neuronal/glial structural proteins may be useful biomarkers of brain injury in cSLE. We aimed to i) compare serum levels of brain injury markers and IFNs between children with cSLE and controls; and ii) investigate the relationship of markers to cSLE disease features and serum-IFN levels.

Methods: We utilized prospectively-collected cross-sectional data from cSLE participants (ages 12-17 years) recruited from the Lupus Clinic at a Canadian tertiary children's hospital from January 2020–December 2023, and age-, sex-matched healthy controls. Serum brain injury markers (serum neurofilament light (sNFL), glial fibrillary acidic protein (GFAP), Tau) were quantified using Simoa Human Neurology 4–Plex B assay; IFN-α and IFN-γ were also quantified with their respective Simoa assays (Quanterix, Billerca, MA, USA). Disease features included disease activity (SLEDAI-2K), damage (SLICC damage index, SDI >0), glucocorticoid (GC) dose at study visit, and cumulative GC exposure (prednisone-equivalent). Wilcoxon rank sum test compared markers/IFNs; Spearman correlation tested associations.

Results: 56 cSLE participants (mean age=15.1±1.8 years, 86% female) and 43 controls (mean age=15.1±1.7 years, 81% female) were included. For cSLE, median disease duration was 22.6 months (IQR 12.5-43.9), median SLEDAI-2K was 2.5 (IQR 2.0-5.3), 9% had disease damage, 41% were using glucocorticoids at study visit, and median cumulative GC exposure was 1.9 grams (IQR 0.6-6.9). One patient had a NPSLE diagnosis. GFAP (114.0 vs 74.3 pg/mL) and Tau (3.57 vs 2.58 pg/mL) serum levels were significantly higher in cSLE compared to controls, as were serum IFN-α (0.278 vs 0.018 pg/mL) and IFN-γ (0.100 vs 0.068 pg/mL) levels (all $p<0.05$). All brain injury markers had significant positive correlations with SLEDAI-2K and GC dose; sNFL and Tau associated with disease damage (Table 1). Higher levels of sNFL and GFAP correlated with IFN-α, while GFAP also associated with IFN-γ (Table 1). No correlations were found between Tau and IFNs.
Conclusion: Serum brain injury markers and IFNs were elevated in cSLE, with brain injury markers correlating with disease features, IFN-α, and IFN-γ. This suggests a link between IFN-mediated inflammation and neuronal/glial injury, and potential utility of sNFL, GFAP and Tau as diagnostic and monitoring biomarkers in cSLE. Future studies will explore relationships between brain injury markers and IFNs in larger cSLE cohorts over time.

WORKSHOP2G_03
Transitioning Juvenile Idiopathic Arthritis to Adult Care: Disease Reclassification, Patterns of Care, and Mental Health Insights
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Objectives: Although the management of juvenile idiopathic arthritis (JIA) is well-established in the pediatric context, management in adulthood and long-term outcomes, including mental health concerns, are less understood, limited in part by reclassification to adult diagnoses, such as rheumatoid arthritis (RA) and ankylosing spondylitis (AS). Current management of adults with JIA is largely extrapolated from pediatric strategies; it is unclear if this is best practice. This study's objective is to discern patterns of care and natural history of JIA after patients enter Adult Rheumatology care.
Methods: Patients with JIA followed by Adult Rheumatology at a large Edmonton site were identified through the electronic medical record. Patients were excluded if they were under age 17 or their diagnosis was reclassified prior to age 18. A retrospective chart review was completed to collect information including the transition into Adult Rheumatology care, current disease status and classification, DMARD use, uveitis frequency and monitoring, and mental health interventions.
Results: 181 patients were identified (135 female). Most patients (74.3%) were referred from Pediatric Rheumatology while 5.4% were referred from elsewhere but were previously followed by Pediatric Rheumatology; 20% did not have transfer-of-care details available. 74% were in remission or low-disease activity state, of whom 17.9% were in drug-free remission when transitioned to adult care. 41.9% were reclassified under a new diagnosis in adulthood: RA (26.2%), psoriatic arthritis (5.8%), AS (7.6%), and IBD-associated inflammatory arthritis (2.3%). 40.6% had documented uveitis screening in adulthood; 79.3% with prior childhood uveitis had ongoing ophthalmologic surveillance. All patients diagnosed with uveitis in adulthood had uveitis in childhood; 41.1% of children with uveitis experienced recurrence in adulthood. As children, 28.2% sought mental health services. Further, 35.4% were treated for mental illness in

adulthood, while 4.4% received inpatient psychiatric treatment as a child or adult.
Conclusion: Our study identified a cohort of patients with JIA followed by Adult Rheumatology; nearly half were reclassified to an alternate Adult Rheumatology diagnosis, which may contribute to the challenges of managing and monitoring long-term outcomes of patients with JIA. Purposeful ongoing uveitis surveillance in adulthood was fair (79%) and captured all patients who experienced uveitis in adulthood, highlighting its importance in this particular group. The high prevalence of mental illness treatment within this cohort suggests that patients with JIA may benefit from monitoring for mental health issues.

WORKSHOP2G_04

How Does Juvenile Idiopathic Arthritis Affect the Employment and Usual Activities of Adolescents? the Ucan Can-Du and Cure International Prospective Study

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Objectives: To measure changes in work productivity and daily activities of patients with Juvenile idiopathic arthritis (JIA), and explore factors affecting these impacts.
Methods: The Canada-Netherlands Personalized Medicine Network in Childhood Arthritis and Rheumatic Diseases (UCAN CAN-DU) and CURE study captures consecutive caregiver reported data including the standardized instrument Work Productivity and Activity Impairment (WPAI) questionnaire for patients at working age. The cohort includes all subtypes of JIA, and full disease trajectory from new diagnosis to starting or stopping biologic medications. Generalized estimating equations were used to model productivity loss and activity impairment over a 1-year-period from study enrollment. Covariates included JIA activity state (e.g., inactive, minimal, moderate/high) and time from enrollment (i.e., baseline, 3, 6, 9, 12 months).
Results: Overall, 154 working-age-patients had at least one WPAI entry during the the 1-year period from enrollment in the study. Their median age was 17 years (IQR = 16-17) and most of them were female (65.8%). GEE estimates are as follows. Over the 1-year-period, we estimate 8.9% of missed work time due to their JIA (absenteeism). However, we found high levels of presenteeism, with 27.6% of work impairment while at work. Accounting for both, patient work productivity impairment was 30% on average. Patients also reported 28.5% activity impairment, due to JIA. The impacts of JIA on all measures remained stable over time. The impact varied with JIA activity state: patients with more severe JIA experience higher levels of burden for all measures.
Conclusion: Our study is the first to capture work productivity loss and activity impairment on JIA patients at working age. Moreover, we capture this across all subtypes of JIA and over time, capturing varying treatment trajectories. Future work should further investigate the clinical determinants of productivity loss and activity impairment to better understand JIA impact on patients at working age and where extra supports for managing JIA in the workplace, and for work accommodations could ease their burden.

Workshop 3E: Recent Developments in the Prognosis of Inflammatory Arthritis

WORKSHOP3E_01

The Discontinuation and Effectiveness of Sequential Advanced Therapy in Rheumatoid Arthritis, a Real-World Data

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Objectives: Patients with rheumatoid arthritis (RA) who fail conventional synthetic treatment with disease modifying anti-rheumatic drugs (csDMARDs) are eligible for biological DMARDs (bDMARDs) or targeted synthetic DMARDs (tsDMARDs). Many patients experience a lack of response or intolerance to their first advanced therapy (AT), requiring a change in medication. Subsequent treatment choice is important for achieving successful long-term disease control. The current study aimed to describe the pattern of sequential AT use in RA patients in a multicentre observational cohort and to evaluate the survival rate and effectiveness of each line of therapy.
Methods: Adult RA patients participating in the Ontario Best Practice research Initiative (OBRI) and initiating their first AT (line 1) between Jun. 1, 2008 and Jan. 1, 2023 were included. Drug retention was defined as the time from initiation to discontinuation of therapy (due to any reason). We evaluated effectiveness using Clinical Disease Activity Index (CDAI) change, the proportion of patients reaching the minimally clinically important difference (MCID), CDAI low disease activity (LDA), and remission at 6 months. Time to event analysis was used for treatment discontinuation and general linear mix model for effectiveness. An exploratory analysis compared outcomes in patients who started their first AT before and after 2010, the year treat to target guidelines were published. We also compared drug survival of the first AT in three therapeutic groups (TNFi, non-TNFi, tsDMARDs).
Results: A total of 2449 patients were included (line 1=1117, line 2=679, line 3=339, and lines 4 to 7=314). TNFi was predominantly used as first-line AT, with Etanercept and Adalimumab being the 1st and 2nd most common choices. Subsequent AT lines exhibited lower TNFi usage. Risk of discontinuation increased in later lines (Figure 1), persisting after adjustments for confounders. Pre-2010 and post-2010 cohorts displayed significant differences in first-line AT retention, suggesting quicker switches post-2010 (Median survival 12.2 vs 7.6 years). Efficacy outcomes favoured first-line AT, with lower CDAI change and attainment of clinical targets in subsequent lines.
Conclusion: We found that TNFi remains the most common first AT, however there has been a downward trend in using TNFi. The first AT has a longer survival and better efficacy when compared to subsequent lines. Clinicians tend to switch the first line therapy earlier since 2010, likely due to a shift towards a treat to target approach and more available therapeutic options.

WORKSHOP3E_02

Exploring Weight Trends in Psoriatic Arthritis: Unraveling Effects of Drugs

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Objectives: We aimed to study the change in weight with the use of csDMARDs, biologic (b) DMARDs, Janus Kinase inhibitors (JAKi), and apremilast and factors affecting weight in Psoriatic arthritis (PsA).
Methods: Patients receiving NSAIDs or no medications, conventional synthetic (cs)DMARDs only (with or without NSAIDs), TNFi as the first biologic, Interleukin (IL)-12/23i, IL17i, IL23i, JAKi, and apremilast with 2 or more weight readings over follow-up were identified from the database of a large cohort. The change in the trend of weight gain before and after was studied by adjusting for age, sex, disease duration, comorbidities, disease activity (psoriasis area and severity index [PASI] and swollen joint count-SJC), line of treatment, and smoking using linear mixed-effect modeling for those with two weight readings available before and after starting the drug. Factors affecting weight over time for the cohort were studied using another linear mixed model adjusting for the above factors along with baseline weight and all drugs received.
Results: A total of 1754 patients were included with 473 patients on NSAIDs or no medications, 571 on csDMARDs, 702 on bDMARDs, 42 on JAKi, and 70 on apremilast. The age at baseline, onset of psoriasis, and PsA were lower in the bDMARD group. Baseline weight, proportion with hypertension, PASI, and DAPSA scores were higher in the apremilast group. The proportion with HLA-C6 was the highest in the NSAIDs or no medication group. On change point analysis comparing the mean weight slopes before and after medication use, significant weight loss was observed with IL17i ($p<0.001$), IL23i ($p=0.002$), and csDMARDs ($p<0.001$) whereas the weight change was not significant with TNFi, IL12/23i, and apremilast. However, a trend towards weight gain was observed with TNFi and weight loss with apremilast. (Figure 1) When factors influencing weight were compared across the cohort, weight gain was observed with TNFi, longer duration of follow-up, higher baseline weight, hypertension, and male sex. The use of apremilast, older age, and diabetes mellitus were associated with weight loss.
Conclusion: Significant weight loss was observed after initiation of IL17i, IL23i, and csDMARDs in PsA as compared to weight before initiation of these drugs. However, when overall effects on weight were studied, the use of TNFi was associated with weight gain whereas apremilast was associated with weight loss

WORKSHOP3E_03

Trends in Arthritis Prevalence Among Individuals with Inflammatory Bowel Disease: a Population-Based Study.

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Objectives: The burden of arthritis among individuals with inflammatory bowel disease (IBD) is poorly understood. We describe changes over time in the annual prevalence of inflammatory arthritis (IA) and musculoskeletal (MSK)-related physician encounters among individuals with IBD.
Methods: We conducted a retrospective repeated cross-sectional study using Ontario population-based health administrative data. We used the Ontario Crohn's and Colitis Cohort which comprises all IBD patients derived from health administrative data using validated age-specific case-identification algorithms (highly accurate). Individuals diagnosed with IBD between April 01, 2003, and March 31, 2020 (population denominator) were followed from their first IBD code (index date) until they died or were lost to follow-up (out-migrated/lost health care coverage), or until the end of available follow-up data (March 31, 2020). We identified the cumulative prevalence of inflammatory arthritis (≥1 hospitalization/ED encounter or ≥2 physician billing claims with IA-related diagnosis codes with ≥1 by a rheumatologist within 365 days). Separately we identified the annual number of individuals with ≥1 hospitalization/ED encounter/physician billing claim with any non-trauma related MSK-specific diagnosis codes. The annual age- and sex-standardized cumulative prevalence of both IA and MSK among individuals living with IBD each year, were separately determined and stratified by age (≤18yrs, 18-64yrs, ≥65yrs).
Results: Over the study period, the number of individuals living with IBD increased from 54,283 in 2003 to 108,857 in 2020; the number of children <18yrs increased from 1,547 to 2,667. Among all ages, the age/sex standardized cumulative IA prevalence within the IBD cohort increased from 6.8% (95% CI 6.5-7.2%) in 2003 to 15.2% (95%CI 15.0-15.8%) by 2020 (Figure 1). IA was slightly more common among those with Crohn's than ulcerative colitis (17.4% vs 13.2%, respectively). By 2020, IA prevalence was 6.8% among children/youth <18yrs, 17.4% among those 18-64yrs, and 23.1% among those ≥65yrs. Overall, crude annual prevalence of an MSK-related encounter remained relatively stable from 30.6% in 2003 to 27.7% in 2020.
Conclusion: This study is the first to provide population-level estimates of IA and MSK-related conditions in people with IBD. The cumulative prevalence of IA among individuals with IBD has steadily increased over time, particularly among those ≥65years, while MSK-related encounters have not. This may be related to increased physician recognition of IA or increased access to care and diagnosis. These findings have implications for healthcare costs and utilization, given the specialized care and expertise required to manage IA in the context of complex, comorbid conditions like IBD.

WORKSHOP3E_04
Peripartum Outcomes and Safe Disease-Specific Medication Use Remain Suboptimal in Women with Immune-Mediated Inflammatory Diseases
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Objectives: Observational and population levels studies confirm that immune mediated inflammatory diseases (IMIDs) including rheumatoid (RA) and psoriatic (PsA) arthritis, spondyloarthritis (SpA) and systemic lupus erythematous (SLE) can negatively affect maternal and neonatal outcomes by way of disease activity and peripartum treatment choices. We hypothesize that despite increased availability of safe peripartum disease treatments for IMID, outcomes are still worse, and treatments underutilized compared to those without IMID in a contemporary Albertan pregnancy cohort.

Methods: A contemporary pregnancy cohort of 446,017 women and corresponding birth events was assembled for the province of Alberta from the random selection of 1 live birth event per woman. We identified 5 groups: (1) no IMID (n=728,102), (2) RA (n=2,170), (3) PsA (n=103), (4) SpA (n=312) and (5) SLE (n=393). We compared maternal and neonatal outcomes, comorbid conditions and medication use at any point in the pregnancies amongst the 5 groups.
Results: Pregnant women with SLE were more likely to have preterm delivery (13.7%), "small for gestational age" babies (19.3%), and NICU admissions (18.6%), compared to the other IMIDs. [Table 1] Cesarean section deliveries were highest in women with SLE (35.9%) and RA (34.7%) while women with SpA had more induction (37.8%) compared to the other groups. The PsA group had the highest corticosteroid (17.5%) and biologic use (16.5%) in the peripartum period while it was lower in RA (8.7%) patients. Antimalarial use was highest in women with SLE (25.4%) and did not decrease when broken down when assessed per trimester.
Conclusion: Worse peripartum outcomes are higher amongst women with SLE and RA compared to women with PsA, AS or no IMID although specific findings including more inductions in SpA patients is notable. Medications safe in pregnancy (eg. anti-malarials and certain biologics) have low uptake which may influence these outcomes. Further peripartum studies evaluating drug safety and outcomes are needed with assessment of the contributions of disease activity. **Supported by a CIORA grant**