and risk of type 2 diabetes mellitus (T2DM) among SLE patients.

**Methods** Using a population-based database that includes all residents of British Columbia, Canada, we conducted a retrospective, longitudinal cohort study of patients with incident SLE and incident antimalarial use. We established drug courses for antimalarials – defining each new course when a 90 day permissible gap had been exceeded between refills and calculating corresponding proportion days covered (PDC). Our primary exposure was adherence to antimalarials according to three categories: 1) adherent (PDC ≥0.90); 2) non-adherent (0<PDC<0.90); and 3) discontinue (PDC=0, no drug).

**Results** The study cohort included 1498 patients with incident SLE, with mean age of 44.4±14.8 years and 1360 (90.8%)

**Background** Systemic lupus erythematosus (SLE) disease activity is characterized by tissue deposition of immune complexes and consumption of complement, which contribute to tissue injury. In clinical practice, it is common to encounter patients where either C3 or C4 is low in isolation, though the clinical implications of variation in C3 relative to C4 are unclear. We performed relationship-based clustering of SLE patients having an average of 38 (range 7–117) measurements of C3 or C4 were studied. To classify SLE patients based on the character of the relationship of C3 vs C4, we performed relationship-based clustering approach by defining linear fit parameters (including alpha, beta, standard error, and p values) followed by hierarchical clustering. The clusters obtained were screened in terms of their dependency to clinical data using Chi square test or Fisher’s exact test, as appropriate, with significance defined as p<0.05.

**Results** Clustering based on multiple characteristics of the relationship between C3 and C4 identified 6 clusters of patients. Clusters 1 and 6 were small and did not have clear phenotypes. Clusters 2 and 5 were both defined by strong correlations between C3 and C4 (Cluster 2 – r=0.81, p=0.00001, Cluster 5 – r=0.81, p=0.0016), though cluster 5 had a lower median C3 level (Cluster 2 C3=79.5, Cluster 5 C3=74.5). Cluster 3 had higher median levels of C3 and C4 (C3=106.0, C4=20.6), and the correlation between C3 and C4 was far less robust (r=0.60, p=0.44730). Cluster 4 was notable for the lowest median C3 and C4 levels (C3=69.8, C4=12.3), and no significant correlation between C3 and C4 was present (r=0.54, p=0.121143).

**Conclusions** Individuals in cluster 2 were more likely to have Jaccoud arthropathy (OR 6.11, CI 1.59 to 24.47), or a history of avascular necrosis (AVN) (OR 4.38, CI 1.55 to 12.34), but less likely to have thrombocytopenia (OR 0.15, CI 0 to 0.98). Cluster 5 patients were more likely to have thrombocytopenia (OR 2.78, CI 1.04 to 7.43) and less likely to have AVN (OR 0.27, CI 0.05 to 0.99).

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**DISCOVERY OF SERPINA3 AS A CANDIDATE URINARY BIOMARKER OF LUPUS NEPHRITIS CHRONICITY**

**Background** Non-invasive biomarkers of lupus nephritis (LN) damage are needed to guide treatment decisions. Urinary proteomics has advanced as a tool for novel biomarker discovery in recent years. Specifically, isobaric tags for relative and absolute quantification (iTRAQ) is an advanced proteomics technique that quantifies and compares protein expression among samples by mass spectrometry in a single experiment. We used...