Conclusions: Individuals at risk of RA who have developed systemic autoimmunity associated with RA and/or symptoms, have enrichment of *Prevotella spp* in comparison with healthy controls. Our findings support the hypothesis of a causal role of *Prevotella spp* in the development of RA, which could lead to future attempts to interfere with its intestinal colonisation during the preclinical stages of disease.

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SAT0678

SEASONALITY OF NEW EARLY INFLAMMATORY ARTHRITIS CASES: PRELIMINARY RESULTS FROM THE CANADIAN EARLY ARTHRITIS COHORT

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Background: Disease clustering suggests a possible environmental cause. However, confirming the causes of time-place clustering is challenging. Rheumatoid arthritis (RA) is an autoimmune disease that may be triggered by environmental factors: viral or bacterial infections can lead to RA via molecular mimicry, epitope spreading, B-cell-mediated pathway, bystander activation and via superantigens. Putative infections may also cluster.

Objectives: To study the seasonal distribution of early inflammatory arthritis (IA) onsets in a Canadian sample, and potential relationships with influenza (flu) outbreaks.

Methods: Data from an incidence cohort of adults (>18 years) with early IA with <13 months symptom duration from the Canadian Early Arthritis Cohort (CATCH) enrolled between January 2007 – January 2017. Patient-reported date of symptom onset and physician-reported date of IA onset were used to estimate the monthly frequency of early inflammatory arthritis onsets. Monthly flu case frequencies from September 2010 – December 2016 were retrieved from the Public Health Agency of Canada's FluWatch national surveillance system of confirmed influenza A and B cases. Time-series Poisson regression analyses were performed to assess the non-random covariance of IA and flu with different hypothesised time lags.

Results: A total of 2262 with early IA were included. Patient-reported IA onset was more frequent in winter months compared to other seasons ($p=0.002$), with peaks in January (figure 1). The ten-year aggregated data also showed January peaks of IA onset. There was a positive linear correlation between the number of IA and influenza A onsets ($r=0.23$, $p=0.045$), and almost no relationship between the number of IA and influenza B cases ($p=0.87$) (figure 2).

Abstract SAT0678 – Figure 1

Abstract SAT0678 – Figure 2

Conclusions: Our study provides novel information on the increased onset of IA in relation to seasonal influenza patterns in a Canadian population and adds to the existing literature supporting viral infections as a possible trigger for RA onset.

Disclosure of Interest: None declared

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SAT0679

CIGARETTE SMOKING AND RISK OF BEHCET'S DISEASE: A CASE-CONTROL STUDY

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Background: Behcet's disease (BD) is a chronic inflammatory multisystem disease characterised by recurrent oral and genital aphthous ulcers, uveitis and skin lesions. Smoking play an important role in the development of inflammatory diseases.¹

Objectives: BD is an inflammatory disease and smoking may have a role in its triggering. Although few studies reported association between smoking and clinical manifestations of BD, to the best of our knowledge, there is no research on the risk of developing BD in smokers.^{2–4} This case-control study was conducted to investigate the association between smoking and the risk of BD.

Methods: We included 192 patients with BD and 822 healthy siblings of patient with BD and 373 age and sex matched healthy unrelated persons as control groups (table 1). Written informed consent was obtained from all the participants. Demographic data and smoking history of patients and their siblings were obtained by direct and in some cases by telephone interview with the participants. Demographic data and smoking history of healthy controls were obtained by direct interview. Current and former smokers were classified together as ever smokers for the purposes of this analysis. We carried out multivariate analyses with a logistic regression model with BD as the main outcome variable and smoking history as the main predictor variable. Models were adjusted for age, gender, marital status, educational status and pack-years.

Results: The patients with BD were more often ever smokers than healthy siblings of patients and healthy unrelated controls (table 1). However, pack-years of smoking in control groups were significantly more than the BD group. By multivariate logistic regression and after adjustment for age, sex, marital status and educational status (model 1), ever smoking was significantly associated with an increased risk of BD compared with never smoking. In comparison with healthy siblings and healthy unrelated persons who never smoked, the relative risk (RR) of developing BD was 1.43 and 1.51, respectively. After including pack year in multivariate analysis (model 2), the RR of developing BD in ever smokers increased to 2.23 and 2.01, respectively.

Abstract SAT0679 – Table 1. Demographic characteristics of participants

Variables	BD group (n=192)	Healthy sibling group (n=822)	P-value	Healthy unrelated control group (n=373)	P-value
Age (years)	38.9±10.6	39.3±11.3	NS	37.9±9.7	NS
Gender:	118 (61.5)	399 (48.5)	0.001	228 (61.1)	NS
Male	74 (38.5)	423 (51.5)		145 (38.9)	
Female					
Smoke status	141 (73.4)	673 (81.9)	0.01	302 (81)	0.025
Never-smoker	43 (22.4)	138 (16.8)		58 (15.5)	
Current	8 (4.2)	11 (1.3)		13 (3.5)	
smokers	51 (26.6)	149 (18.1)		71 (19)	
Past smokers					
Ever smokers					
Pack-years of smoking	11.19±8.8	17.79±11.4	0.003	14.19±10.7	0.007

Qualitative and quantitative variables were displayed as numbers (percentages) and means ±SD, respectively.

BD: Behcet's disease; NS: non-significant