two patients had alopecia. There were no cases of type 1 diabetes, vitiligo or thyroid disorders. Interestingly, four patients had lung involvement, two of them with granulomatous-lymphocytic interstitial lung disease (GLILD), one with organising pneumonia and one with usual interstitial pneumonia. Five of the eleven patients required immunosuppressive treatment, mostly with steroids. One case of AIT required concomitant treatment with azathioprine and the patient with psoriasis was treated with methotrexate. In six patients, autoimmune disorder was the first manifestation.

Conclusion: 33% of the CVID patients had autoimmune or inflammatory manifestations in our cohort; six patients had one immune/inflammatory phenomena, four had two different disorders and one patient presented with three different ones. The most frequent manifestation was AIT, as seen in previous reports. In six cases, the autoimmune-inflammatory manifestation was the first symptom attributable to CVID. In conclusion, AD are common in CVID patients, so clinicians must be aware of possible immunodeficiencies in this type of patients.

REFERENCES:

- [1] Amaya-Urbe L, Rojas M, Azizi G, Anaya JM, Gershwin ME. Primary immunodeficiency and autoimmunity: A comprehensive review. *J Autoimmun.* 2019 May;99:52-72.
- [2] ESID Registry – Working Definitions for Clinical Diagnosis of PID, January 22, 2019.

Disclosure of Interests: None declared

DOI: 10.1136/annrheumdis-2021-eular.2696

What the rheumatologist needs to know to interpret studies in 2021

OP0005

DIETARY HYPERINSULINEMIC POTENTIAL AND RISK OF INCIDENT GOUT: 3 PROSPECTIVE COHORT STUDIES OF US MEN AND WOMEN

N. McCormick^{1,2,3,4}, C. Yokose^{1,3,4}, L. Lu^{2,5}, A. Joshi^{3,4,6}, H. Choi^{1,2,3,4}

¹Massachusetts General Hospital, Clinical Epidemiology Program, Division of Rheumatology, Allergy, and Immunology, Boston, United States of America;

²Arthritis Research Canada, Richmond, Canada; ³Massachusetts General Hospital, The Mongan Institute, Boston, United States of America; ⁴Harvard Medical School, Medicine, Boston, United States of America; ⁵Brigham and Women's Hospital, Channing Division of Network Medicine, Boston, United States of America; ⁶Massachusetts General Hospital, Clinical & Translational Epidemiology Unit, Boston, United States of America

Background: Gout and the metabolic (insulin resistance) syndrome frequently coexist. Intravenous insulin has been shown to raise serum urate (SU) levels in physiologic studies and a Mendelian Randomization study also showed a causal role of insulin on the risk of gout. However, it is unknown whether habitual hyperinsulinemic dietary intake confers gout risk.

Objectives: Prospectively examine the relation between two distinct insulin-related dietary indices and risk of incident gout in three large cohorts of US women and men over 30 years.

Methods: We studied 164,090 women from Nurses Health Study I (1986-2016) and II (1989-2017) and 40,598 men from Health Professionals Follow-up Study (1986-2016), who were free of gout at baseline. Dietary intake and covariates were assessed by validated questionnaires every 4 years. Insulinemic potential of diet was evaluated using 1) food-based empirical dietary index for

hyperinsulinemia (EDIH) score that was pre-defined based on circulating C-peptide levels¹ and reflects *insulin resistance*²; and 2) dietary insulin index (DII), which reflects *transient, postprandial insulin secretion*.² We assigned EDIH and DII scores for each participant, adjusted for total energy intake, and prospectively examined the association between scores and incident gout (using ACR survey criteria for gout³), adjusting for potential confounders.

Results: We ascertained 2,874 incident gout cases over 5,124,490 person-years of follow-up. In pooled multivariable-adjusted analyses, those in the highest EDIH quintile had 1.76-times (95% CI: 1.56 to 1.99) higher gout risk, compared with the lowest (Table 1). This attenuated with further adjustment for BMI (a likely causal intermediate) but remained positive (RR 1.30, 1.15 to 1.48). DII scores were inversely associated with gout risk (RR 0.66, 0.58 to 0.74) (Table 1).

Conclusion: EDIH scores, reflecting chronic hyperinsulinemia (i.e., greater insulin resistance with reduced clearance), were positively associated with the risk of incident gout, even beyond the pathway through adiposity. Conversely, higher DII scores, which reflect short-term, postprandial elevations in insulin levels (and also greater insulin clearance and sensitivity) conferred a lower risk. This corroborates human physiologic experiments and Mendelian Randomization studies showing insulin resistance can increase SU levels by decreasing renal excretion of urate, and supports lowering insulinemic potential of diet as a strategy to reduce gout risk.

REFERENCES:

[1] Tabung *et al.* PMID 27821188

[2] Lee *et al.* PMID 32618519

[3] Wallace *et al.* PMID 856219

Disclosure of Interests: Natalie McCormick: None declared, Chio Yokose: None declared, Leo Lu: None declared, Amit Joshi: None declared, Hyon Choi Consultant of: Ironwood, Selecta, Horizon, Takeda, Kowa, Vaxart, Grant/research support from: Ironwood, Horizon

DOI: 10.1136/annrheumdis-2021-eular.719

Opening Plenary Abstract session

OP0006

ASSOCIATIONS OF BASELINE USE OF BIOLOGIC OR TARGETED SYNTHETIC DMARDS WITH COVID-19 SEVERITY IN RHEUMATOID ARTHRITIS: RESULTS FROM THE COVID-19 GLOBAL RHEUMATOLOGY ALLIANCE

J. Sparks^{1,2}, Z. Wallace^{2,3}, A. Seet⁴, M. Gianfrancesco⁴, Z. Izadi^{4,5}, K. Hyrich^{6,7}, A. Strangfeld⁸, L. Gossec^{9,10}, L. Carmona¹¹, E. Mateus^{12,13}, S. Lawson-Tovey^{7,14}, L. Trupin⁴, S. Rush⁴, G. Schmajuk^{4,15}, P. Katz⁴, L. Jacobsohn⁴, S. Al Emadi¹⁶, L. Wise¹⁷, E. Gilbert¹⁸, A. Duarte-Garcia¹⁹, M. Valenzuela-Almada²⁰, T. Hsu¹, K. D'silva^{2,3}, N. Serling-Boyd^{2,3}, P. Dieudé²¹, E. Nikiphorou²², V. Kronzer¹⁸, N. Singh²³, M. F. Ugarte-Gil²⁴, B. Wallace^{25,26}, A. Akpabio²⁷, R. Thomas²⁸, S. Bhana²⁹, W. Costello³⁰, R. Grainger³¹, J. Hausmann^{2,32,33}, J. Liew³⁴, E. Siroch^{35,36}, P. Sufka³⁷, P. Robinson^{38,39}, P. Machado^{40,41,42}, J. Yazdany⁴ on behalf of COVID-19 Global Rheumatology Alliance. ¹Brigham And Women's Hospital, Division of Rheumatology, Inflammation, and Immunity, Boston, United States of America; ²Harvard Medical School, Division of Rheumatology, Inflammation, and Immunity, Boston, United States of America; ³Massachusetts General Hospital, Division of Rheumatology, Allergy, and Immunology, Boston, United States of America; ⁴University of California, San Francisco, Division of Rheumatology, San Francisco, United States of America; ⁵University of

Table 1. Risk Ratio (95% CI) of Gout According to Quintiles of Insulin-Related Dietary Index

EDIH (measure of insulin resistance)						
	Q1: lowest circulating insulin levels	Q2	Q3	Q4	Q5: highest circulating insulin levels	P for trend
N cases	430	482	598	631	733	
Person-years	1,025,129	1,025,285	1,025,574	1,025,301	1,023,651	
Age-adjusted RR	1.00 (Ref)	1.13 (1.00-1.29)	1.43 (1.26-1.61)	1.53 (1.36-1.73)	1.85 (1.64-2.09)	<.0001
MV-Adjusted [*] RR	1.00 (Ref)	1.11 (0.98-1.27)	1.39 (1.22-1.57)	1.47 (1.30-1.67)	1.76 (1.56-1.99)	<.0001
MV-Adjusted ^{**} RR (+ BMI)	1.00 (Ref)	1.03 (0.90-1.17)	1.21 (1.06-1.37)	1.21 (1.07-1.37)	1.30 (1.15-1.48)	<.0001
Dietary Insulin Index (measure of transient, post-prandial secretion and sensitivity)						
	Q1: lowest insulin sensitivity	Q2	Q3	Q4	Q5: greatest insulin sensitivity	P for trend
N cases	783	611	527	498	455	
Person-years	1,024,763	1,025,730	1,025,075	1,025,538	1,023,834	
Age-adjusted RR	1.00 (Ref)	0.79 (0.71-0.88)	0.69 (0.62-0.77)	0.65 (0.58-0.73)	0.59 (0.53-0.66)	<.0001
MV-Adjusted [*] RR	1.00 (Ref)	0.79 (0.71-0.88)	0.69 (0.62-0.77)	0.66 (0.59-0.74)	0.60 (0.53-0.67)	<.0001
MV-Adjusted ^{**} RR (+ BMI)	1.00 (Ref)	0.78 (0.70-0.87)	0.69 (0.62-0.77)	0.67 (0.60-0.75)	0.66 (0.58-0.74)	<.0001

*Multivariable (MV) models adjusted for age (month), White race, smoking, menopause (women only), hormone use (women only), physical activity, history of hypertension, and diuretic use **MV + BMI models further adjusted for BMI (a likely causal intermediate)