Abstract SAT0712 – Table 1. Frequency of specific psoriatic arthritis radiographic features

	Randomized control trials	Observational studies	Total number of studies (out of N=61)
Erosions	24 (54.5%)	20 (45.5%)	44
Space narrowing	24 (57.1%)	18 (42.9%)	42
Osteolysis	14 (58.3%)	10 (41.7%)	24
Pencil in cup	10 (58.8%)	7 (41.2%)	17
Tuft resorption	6 (42.9%)	8 (57.1%)	14
Proliferation	6 (50%)	6 (50%)	12
Periostitis	5 (55.6%)	4 (44.4%)	9
Subluxation	3 (50%)	3 (50%)	6
Ankylosis	2 (40%)	3 (60%)	5
Juxta-articular osteopenia/osteoporosis	0 (0%)	4 (100%)	4

Conclusions: Damage in PsA is usually evaluated radiologically. Although radiographic scores are almost always adapted for PsA in order to include DIP joints, the other PsA specific radiographic elements are not so frequently assessed. A more specific but also a feasible radiographic score for PsA damage to be universally used in studies is still needed. Further research on other methods of evaluating PsA damage is also needed since data is scarce.

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SAT0713 INCIDENCE OF EROSIVE INTERPHALANGEAL OA IS STRONGLY ASSOCIATED WITH AGE, FEMALE GENDER, WHITE RACE, AND PRE-EXISTING HAND OA: DATA FROM THE OSTEOARTHRITIS INITIATIVE

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Background: Symptomatic erosive interphalangeal OA (SEIPOA) is differentiated from hand OA by the presence of central joint erosions and is more strongly associated with hand pain, disability and finger deformity. There are no specific treatments for SEIPOA and relatively little is known about its incidence and natural history.

Methods: We evaluated participants in the Osteoarthritis Initiative (OAI), a multicenter cohort study of 4796 adults with or at risk for symptomatic knee OA recruited at 4 clinical sites between February 2004 and May 2006, which included postero-anterior radiographs of one or both hands at baseline and at 48 months, as well as questions about joint pain including the hand (based on a homunculus where patients indicated left or right hand pain) and self-reported physician-diagnosed hand OA.

Trained readers scored the severity of OA in 16 joints of the dominant hand using the Kellgren Lawrence scale and classified presence of central erosions according to the OARS Atlas of radiographic features: 2nd-5th distal interphalangeal (DIP) joints, 2nd-5th proximal interphalangeal (PIP) joints, 1st-5th metacarpophalangeal (MCP) joints, thumb interphalangeal (IP) joint, thumb-base joints (i.e., first carpometacarpal (CMC-1) joint and the scaphotrapezial (ST) joint).

We classified erosive interphalangeal OA (EIPOA) based on presence of OA (KL ≥2) in at least one IP joint on two different fingers (excluding thumb base joints) with at least one with a central erosion and symptomatic erosive interphalangeal OA (SEIPOA) if there was also a report of hand pain.

Baseline characteristics were examined by incident SEIPOA and EIPOA using ANOVA for continuous variables and chi-square analysis for categorical variables. Odds ratios were calculated to estimate the strength of association with

incident SEIPOA. A p-value≤0.05 was considered significant. All analyses were conducted with SAS 9.4.

Results: 3604 participants had hand radiographs at baseline and 48 months; 18 radiographs were not readable and 121 had prevalent SEIPOA at baseline, leaving 3465 individuals eligible for analysis. The average age was 60.8 years (sd=9.1), 56.1% were female, and 81.3% were white.

133 individuals (3.8%) developed incident SEIPOA over the 4 year observation period. They had greater burden of IP OA at baseline (1.9 vs. 6.2 joints, p<0.001) and were more likely to report a diagnosis of hand OA (13.0% vs. 42.9%, p<0.001) than those who did not develop SEIPOA. 97.7% of the incident SEIPOA occurred in hands with radiographic hand OA, vs. 2.3% in hands without radiographic OA. SEIPOA incidence was strongly associated with older age, female gender, white race, smoking, lower BMI and lower level of physical activity (Image 1). Results were similar for radiographic EIPOA with the exception of the association with hypertension.

	No SEIPOA (n=3332)	SEIPOA (n=133)	p-value	OR (95% CI)
Age, years (mean, sd)	60.6 (9.1)	66.6 (7.6)	<0.001	2.00 (1.66, 2.41)
Gender (n, %)			<0.001	
Female	1844 (55.3)	99 (74.4)		2.35 (1.58, 3.49)
Race/Ethnicity (n, %)			0.003	
White	2695 (80.9)	121 (91.0)		2.38 (1.31, 4.34)
Smoking Status (n, %)			0.007	
Ever smoked	1313 (39.4)	69 (51.1)		1.61 (1.14, 2.28)
BMI, kg/m ² (mean, sd)	28.6 (4.8)	27.0 (4.2)	<0.001	0.69 (0.57, 0.84)
Waist Circumference > cut-point (n, %)	2404 (74.1)	110 (82.7)	0.025	1.68 (1.06, 2.64)
Diabetes (n, %)	219 (6.7)	11 (8.5)	0.436	1.29 (0.68, 2.42)
Hypertension (n, %)	1652 (49.6)	84 (63.2)	0.002	1.74 (1.22, 2.50)
PASE score (mean, sd)	166 (82.3)	137 (72.5)	<0.001	0.68 (0.56, 0.82)
# joints with OA sans TB (mean, sd)	1.9 (2.6)	6.2 (2.6)	<0.001	3.11 (2.67, 3.62)
MD diagnosed hand OA (n, %)	434 (13.0)	57 (42.9)	<0.001	5.01 (3.50, 7.16)

Note: OR's are calculated per SD for continuous variables

Figure 1. Comparison of baseline characteristics by incident SEIPOA group

Conclusions: Incidence of SEIPOA in older people is substantial and approximates that of rheumatoid arthritis. SEIPOA is strongly related to age, female gender, and white race, develops in the setting of pre-existing hand OA, and is somewhat associated with reduced BMI and lower level of physical activity.

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SAT0714 IMPACT OF PM10 ON THE BURDEN OF RAYNAUD'S PHENOMENON SECONDARY TO SYSTEMIC SCLEROSIS

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Background: Raynaud's phenomenon (RP) is the most frequent manifestation of patients with systemic sclerosis (SSc) and it is responsible for significant morbidity. RP has been ranked by patients with SSc as the second most disturbing related-disease symptom.¹ It's well known that RP, defined as episodic digital ischemia characterised by pain, numbness and digital colour changes, is provoked by environmental factors such as cold temperature and smoking exposure.² No data are available on the impact of particulate matter (PM) exposure on SSc-RP severity.

Objectives: Our aim was to evaluate the association between PM with aerodynamic diameter ≤10 µm (PM₁₀) and SSc-RP severity.

Methods: We applied multivariable continuous ordinal regression model to evaluate the association between short-term exposure to PM₁₀ and a measure of RP severity (in terms of number and duration of RP attacks, numbness, pain, burning and tingling) as measured by a Visual Analogue Scale (VAS). The model was then adjusted by sex, intravenous prostacyclin therapy (alprostar or iloprost), SSc subtype, general health (GH) VAS and season. Daily PM₁₀ concentrations, from monitoring stations measured by Regional Environmental Protection Agency (ARPA Lombardia), were used to assign short-term exposure (mean of the 3 days preceding the evaluation) to each study subjects at his/her area of residence.

Results: We enrolled 87 consecutive patients with SSc-RP from September 2016 to February 2017. 88.5% were female, mean age was 61 years, median time from diagnosis was 14 years (q1-q3: 7–21 years), and 10% had diffuse cutaneous SSc. The median VAS severity was 5 mm (q1-q3: 2–7 mm). 43.7% were treated with prostacyclin therapy.

The model, performed as described above, estimated that for each 10 $\mu\text{g}/\text{m}^3$ increase in PM_{10} there is a worsening of 40% in RP VAS severity (OR 10 $\mu\text{g}/\text{m}^3 \pm 1.40$; 95% CI: 1.12–1.74).

Conclusions: To our knowledge a correlation between SSc-RP and air pollution as assessed by PM_{10} has never been published before. There is increasing evidence that a number of environmental factors are fundamental in the development and course of SSc.³ These results support the need to perform exposome epidemiology studies, next to genomics, to fully reveal the underlying mechanisms of diseases.

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SAT0715

RISK FACTORS OF IMMUNE-RELATED ADVERSE EVENTS IN PATIENTS TREATED WITH ANTI-PD-1 ANTIBODY PEMBROLIZUMAB

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Background: Immune checkpoint inhibitors targeting cytotoxic T-lymphocyte-associated protein 4 and programmed cell death protein 1 (PD-1) have been

established as a novel standard treatment for various types of malignancies. However, these new class of drugs have led to increased immune-related adverse events (IrAEs) including rheumatic manifestations.

Objectives: To determine the risk factors of IrAEs in patients treated with anti-PD 1 antibody pembrolizumab.

Methods: A retrospective medical record review was performed to identify all patients who received at least one dose of pembrolizumab at Samsung Medical Centre, Seoul, Korea between June 2015 and December 2017. Three hundred and ninety two patients were identified. Multivariate logistic regression model was used to identify risk factors of IrAEs.

Results: The mean age was 59.7 $\pm$ 13.0 years (range, 18–95) and the median number of doses of pembrolizumab was 2 (IQR, 1.25–5). The primary malignancies included in the study were lung cancer (n=212, 54.1%), melanoma (n=74, 18.9%), lymphoma (n=53, 13.5%) and others (n=53, 13.5%). Sixty-seven (17.1%) patients experienced clinically significant IrAEs; most commonly dermatologic disorders (n=39, 9.9%), pneumonitis (n=11, 2.8%), musculoskeletal disorders (n=10, 2.6%), followed by endocrine disorders (n=7, 1.8%). Fourteen patients (3.6%) experienced serious IrAEs ($\geq$ Grade 3). Most common serious IrAEs were pneumonitis (n=9, 2.3%). There were 4 deaths associated with IrAEs, all of which were due to pneumonitis. Multivariate logistic regression analysis showed that obesity was the risk factors of IrAEs in pembrolizumab-treated patients. Patients with a body mass index (BMI) of 25 or higher had a 3.65-fold higher risk of IrAEs compared with patients with a BMI between 18.5 and 22.9 (95% CI, 1.58 to 8.42).

Conclusions: To our knowledge, this is the first study to explore the risk factor for IrAE in patients undergoing modern cancer immunotherapy. Our study demonstrate that BMI is associated with an increased risk of IrAEs in patients treated with pembrolizumab. Further studies to investigate the potential mechanisms by which obesity raises IrAEs are needed.

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