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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