2037. Geographic Distribution and Environmental Triggers of Systemic Sclerosis in Massachusetts

- The objectives of this study are to analyze the geographic distribution of SSc in Massachusetts between 1989-2019, determine incidence rates, and evaluate potential environmental exposures.

- The density of industry presence and waste sites was found to be significantly higher in the areas with elevated incidence of SSc compared to low incidence areas (8.5-fold increase; p=0.0087)

- Particulate pollution (PM2.5) levels were increased in high incidence areas, and airborne benzene levels correlated well with incidence rates of SSc in the Boston area.

- The presence of regional clustering and increased density of industry and waste sites in those areas suggests that multiple environmental factors may play a critical role in the development of SSc.

2036. Damage Trajectories in Systemic Sclerosis Using Group-Based Trajectory Modelling

- This study aimed to identify if there are distinct trajectories of damage accrual from early in the disease.

- Four trajectories of damage accrual were identified

- Three groups with higher damage scores.

- The groups were distinct at baseline: higher baseline SCTC-DI, older age, male sex, current or previous smoking history, diffuse disease, tendon friction rubs, renal impairment, anti-RNA polymerase positivity and higher baseline inflammatory markers.

- Anti-centromere antibody positivity was more prevalent in the lower disease damage groups

2048. Comparison of Two Rituximab Regimens for Induction of Remission in Antineutrophil Cytoplasm Antibody-associated Vasculitis: Systematic Review and Meta-analysis

- Different RTX regimens for induction of remission are available: the 4-dose AAV regimen at doses of 375 mg/m2 I.V. weekly, and the 2-dose rheumatoid arthritis (RA) regimen at doses of 1000 mg I.V. on day 1 and 15.

- 27 met inclusion criteria, including 1 RCT, 4 prospective cohorts, 9 retrospective cohorts and 13 case series. A total of 506 patients with GPA or MPA were included for analysis: 361 patients were treated with the 4-dose AAV regimen and 145 patients with the 2-dose RA regimen.

- No difference was found in terms of efficacy and safety between the 4-dose AAV and the 2-dose RA rituximab regimens for induction of remission in severe AAV.

2049. Nasal Bacteria Associated with Disease Activity and ANCA Levels in Granulomatosis with Polyangiitis

- Nasal bacteria have been linked to disease activity in granulomatosis with polyangiitis (GPA) with most studies focused on Staphylococcus aureus.

- Nasal bacterial composition was examined using 16S rRNA gene sequencing of nasal swabs of 19 patients with GPA

- Corynebacterium tuberculostearicum (CT) featured prominently in our analyses. CT significantly increased across visit types in GPA when evaluating any relapse (adjusted P = 0.04). The presence of S. aureus was independently associated with a higher CT abundance (adjusted P = 0.02). CT abundance was associated with higher levels of PR3-ANCA (P = 0.02).

- Our species-level analysis has uncovered a novel finding between CT and both disease relapse and ANCA levels in GPA. Our results also detected associations between CT and S. aureus

- Competitive interactions between CT and Staphylococci induce nasal mucosal immune responses which, in susceptible hosts predisposed to autoimmunity and ANCA formation, leading to systemic relapse in GPA