Abstract PS2:43 Figure 1

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| PS2:44 | ROLE OF ANTI-DFS70 ANTIBODIES IN THE SEROLOGICAL DIAGNOSTICS OF SLE |

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Background Positive antinuclear antibosies (ANA) may lead to additional testing and potentially even inappropriate treatment in patients with rheumatic symptoms not caused by systemic lupus erythematosus (SLE). The aim of our study was to evaluate if autoantibodies directed against DFS70 can be used to exclude SLE in ANA positive patients.
Patients and methods Anti-DFS70 antibodies were determined by chemoluminescence assay (CIA) in sera of 352 apparently healthy individuals (AHI), 300 patients with SLE, 335 patients with other connective tissue diseases (CTD) including 56 patients with undifferentiated connective tissue disease (UCTD), and 660 non-CTD patients (302 rheumatoid arthritis, 94 ANCA-associated vasculitis, 87 atopic rhinitis, 135 paediatric patients with celiac disease, and 42 autoimmune liver diseases). Furthermore, 1048 patients of a routine cohort with positive ANA results determined by immunofluorescence on HEp-2-cells showing positive staining of the chromatine region and negative result in confirmatory assays for antibodies against dsDNA, histone, nucleosome, and DNA-topoisomerase 1 antibodies were included in this study.
Results In AHI and in the non-CTD cohort, anti-DFS70 antibodies occur with a prevalence of 5.1% and 2%, respectively. Of the 1048 selected routine sera, 205 (19.6%) were positive for anti-DFS70 antibodies. Various diseases but no definite SLE were diagnosed according to available data of 116 of anti-DFS70 positive patients. Of the 300 SLE patients, only one patient was low titred positive for anti-DFS70 antibodies

in addition to dsDNA, nucleosome, Ro/SS-A and La/SS-B autoantibodies. In the non-CTD group, only 6 of 579 patients (1.2%) were positive for anti-DFS70 antibodies, all of them also show disease specific autoantibodies. In patients with UCTD, 6 (10.7%) were anti-DFS70 antibody positive in the absence of disease specific autoantibodies. Up to now, no development of SLE was observed in these patients.
Conclusion If anti-DFS70 antibodies are positive in the absence of SLE specific autoantibodies, SLE can be excluded with high certainty.

Poster session 3: Epidemiology

| PS3:45 | SPATIAL-TIME CLUSTER ANALYSIS OF SLE DISEASE ACTIVITY |

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Background Cluster detection is an essential tool in the public health domain with the goal of detecting anomalous clusters of disease cases. We performed a spatial-time cluster analysis of the Johns Hopkins Lupus cohort with the goal of identifying potential spatial-time clusters of SLE organ specific disease activity.
Methods 1844 patients who fulfil 4 of the 11 American College of Rheumatology classification criteria for SLE and who had recorded home addresses were included in the analysis. Cluster detection analysis in both space and time of disease activity expressed as Physician Global Estimate (PGA) was performed. The area utilised in this analysis was a 350 kilometre radial buffer around the Johns Hopkins Lupus Centre, and included all of Maryland, Delaware, and District of Columbia, as well as parts of Pennsylvania, New Jersey, Virginia, and West Virginia. This area was considered due to the high and consistent density of study participants. The data ranged from 1987 to 2017, with the spring, summer, fall, and winter seasons serving as time units for the temporal based analyses.
Results CNS, renal, and joint flares have both seasonal patterns as well as large-scale multi-year trends. CNS flares clustered between Annapolis, MD and Frederick, MD between 1987 and 2000, renal flares clustered in central Maryland and northern Virginia between 2002 and 2006 and and a joint

flare cluster included Delaware, Delaware Bay area, and Chesapeake Bay area between 2003 and 2014. Maps were generated highlighting the study area, flares, and identified clusters from all analyses. The space-time effects of environmental and demographic variables on the identified clusters will be considered in subsequent analysis.

Conclusions We describe the first space-time clusters of lupus organ-specific disease activity strongly supporting the role of environmental factors as drivers of lupus activity.

PS3:46 RELATIONSHIP BETWEEN DAMAGE CLUSTERING AND MORTALITY IN JUVENILE SYSTEMIC LUPUS ERYTHEMATOSUS: CLUSTER ANALYSES IN A LARGE COHORT FROM THE SPANISH SOCIETY OF RHEUMATOLOGY LUPUS REGISTRY

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Objectives To identify patterns (clusters) of damage manifestations within a large cohort of juvenile SLE (jSLE) patients and evaluate the potential association of these clusters with a higher risk of mortality.

Methods This is a multicentre, descriptive, cross-sectional study of a cohort of 345 jSLE patients from the Spanish Society of Rheumatology Lupus Registry. Organ damage was ascertained using the Systemic Lupus International Collaborating Clinics Damage Index. Using cluster analysis, groups of patients with similar patterns of damage manifestations were identified.

Results Mean age at diagnosis 14.2 ± 2.89, 88.7% were female and 93.4% were Caucasian. A total of 12 (3.5%) patients died, mean SLICC/ACR DI 1.27 ± 1.63. Three damage clusters were identified:

Cluster 1 (72.7% of patients) showed damage in only 22.3% of patient, but no significant domain was involved.

Cluster 2 (14.5%) was featured by renal damage in 60% of patients, ocular damage in 54%, cardiovascular damage in 20% and gonadal failure in 14%, all significantly higher than clusters 1 and 3 ($p < 0.001$). All patients scored for some damage in SLICC/ACR DI index, with a mean of 2.90 ± 1.54 and mean affected domains of 1.86 ± 0.93.

Cluster 3 (12.7%) was the only group with musculoskeletal damage (100%), clearly higher than clusters 1 and 2. All patients scored for some damage in SLICC/ACR DI index, with a mean of 2.66 ± 1.87 and mean affected domains of 1.89 ± 1.18.

The overall mortality rate of patients in clusters 2 and 3 was higher than in cluster 1 ($p < 0.05$) and significantly higher in cluster 2 (2.2x times than cluster 3 and 5x times than cluster 1) (See table 1).

Conclusion In a large cohort of jSLE patients, we found one cluster with several damage domains involved that we consider clinically meaningful. Another cluster with important musculoskeletal damage manifestations and another cluster with no clinically significant damage at all were also found. These two clusters of jSLE with important clinical damage were found to be associated to higher rates of mortality, specially for the cluster involving renal, ocular, cardiovascular and gonadal domains. Physicians should pay special attention to the early prevention of damage in these particular subsets of patients.

PS3:47 MULTI-YEAR ANALYSIS OF PREVALENCE/OUTCOMES OF PULMONARY EMBOLISM IN SYSTEMIC LUPUS ERYTHEMATOSUS DISCHARGES FROM NATIONWIDE INPATIENT SAMPLE DATABASE & COMPARISON TO NATIONAL HOSPITAL DISCHARGE SURVEY

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Abstract PS3:47 Table 1 Outcomes

Variable	All Patients	PE	No PE	OR	p-Value
Inpatient Mortality	6132 (2%)	226 (6%)	5906 (2%)	2.99 (CI 2.56 – 3.49)	<0.001
Moderate to severe disability at discharge	77904 (26%)	1184 (31%)	76720 (26%)	1.26 (CI 1.16 – 1.37)	<0.001

Variable	All Patients	PE	No PE	Co-efficient	p-Value
LOS Median (IQR), Days	4	6	4	2.91 (CI 2.54 – 3.27)	<0.001
Total Charges ($10,000) Median (IQR)	23100	34900	22900	1.94 (CI 1.59 – 2.29)	<0.001

Data are presented as Number of patients (%) or Median (± IQR).

Abbreviations: OR = Odds Ratio (95% Confidence Intervals (CI)); LOS = Length of stay; PE = Pulmonary Embolism; IQR = Interquartile range