Abstract 165 Table 3 Characteristics of study participants in the validation phase-II

Variable	No.	Mean	%
SLE	15		
Age, years		35.9	
Male	2		13
Female	13		87
RA	7		
Age, years		53.2	
Male	2		28
Female	5		72
DM	9		
Age, years		51.0	
Male	3		33
Female	6		66
BD	20		
Age, years		34.3	
Male	9		21
Female	11		79
AS	15		
Age, years		36.1	
Male	11		73
Female	4		27
Health	20		
Age, years		40.8	
Male	0		0
Female	20		100

The abbreviations used are as follow: RA, rheumatoid arthritis ; DM, dermatomyositis; BD, behcet disease; AS, ankylosingspondylitis.

Background Systemic lupus erythematosus (SLE) is a chronic, complex autoimmune disorder characterized by the production of autoantibodies and heterogeneous clinical presentation. Biomarkers are in urgent need for the accurate diagnosis of the disease.
Methods SLE serum autoantibodies were discovered and validated using serum samples from independent sample cohorts encompassing 306 participants divided into three groups, i.e., healthy, SLE patients, and other autoimmune diseases. To discover biomarkers for SLE, a phage displayed random peptide library (Ph.D. 12) and deep sequencing were applied to screen specific autoantibodies in a total of 100 serum samples from 50 SLE patients and 50 healthy controls. A statistical analysis protocol was setup for the identification of peptides as potential biomarkers. For validation, ten peptides were analyzed using enzyme linked immunosorbent assays (ELISA) in two independent cohorts.
Results For the screening phase, a total of 116 peptides were highly enriched by the sera of SLE patients as compared to that of the health controls. Further validation showed that using a set of four peptides panel could achieve an AUC of 0.86. Among the four peptides, two of them were further confirmed in an independent group of patients with SLE and other autoimmune diseases.
Conclusions We demonstrate that a M13 phage displayed random peptide library in combination with deep sequencing can be used to identify peptides that could be specifically recognized by IgG in the sera of SLE patients.
Funding Source(s): N/A

166 THE INCREASING PREVALENCE OF SLE, 2001–2011: UNITED STATES NATIONWIDE POPULATION-BASED ESTIMATES

[1]KimNgan P Nguyen*, [2]Eric Y Yen, [3]Ning Li, [4]Ram Raj Singh. *[1]David Geffen School of Medicine at UCLA; [2]Department of Medicine, University of California at Los Angeles (UCLA) David Geffen School of Medicine; [3]University of California, Los Angeles Clinical and Translational Science Institute; [4]UCLA*

10.1136/lupus-2019-lsm.166

Background The prevalence rate of SLE in previous reports has widely varied by as much as 12-fold over the years, which is likely due to variabilities in study populations, case definitions, and case ascertainment sources. Previous studies covered relatively small populations such as city, county, state, or Medicaid. To our knowledge, there are no reports of SLE prevalence covering the entire US population. Although, elegant CDC registries covering several counties in 5 states provide valuable information on SLE prevalence, there is an important unmet need to estimate the national prevalence of SLE.
Methods We used ambulatory physician visits derived from the National Ambulatory Medical Care Survey and the National Hospital Ambulatory Medical Care Survey databases based on a multistage probability design to enumerate encounters that represent SLE using ICD-9 code 710.0. We then estimated the number of SLE patients from these encounters. SAS was used to determine the mean and 95% CI of SLE prevalence, overall and by sex, race/ethnicity, age, and geographic region. We calculated the cumulative percent change in prevalence between 2001 and 2011 (Chi-square test), modeled trends, and calculated the annual percent change using Joinpoint regression analysis.
Results The overall prevalence rate of SLE during 2001–2011 is 86.4 per 1 00 000 persons (95% CI, 69.6–103.3). The annual SLE prevalence increased 6% (95% CI, 2.5–9.5) each year from 2001 through 2011, with cumulative increase of 59.4% during this period (72.2 in 2001 to 115.1 in 2011, $p<0.0001$). The period prevalence of SLE during 2001–2011 is 9-fold higher in females (137.5 [95% CI, 109.2–165.9]) than males (15.2 [95% CI, 8.0–22.4]). Non-Hispanic black persons had the highest prevalence (200.8 [95% CI, 125.9–275.8]). There were substantial variations in SLE prevalence by geographic regions: persons living in the West had the highest prevalence (108.9), followed by South (89.5), Northeast (79.4), and Midwest (65.7).
Conclusions Analysis of national survey data reveals an increasing trend in SLE prevalence across the US during 2001–2011, which may reflect an increased recognition of SLE, changes in physicians coding practices, decreasing mortality, or actual increases in the prevalence. Lack of verification of SLE diagnosis by rheumatologists is a major limitation of this study, especially since there is discordance even among rheumatologists as to what constitutes a diagnosis of lupus. Nevertheless, our data show demographic and regional differences in SLE prevalence across the US, with the highest prevalence in black persons and females, as reported previously, and in the West.
Funding Source(s): Rheumatology Research Foundation's Medical and Graduate Student Preceptorship Award