Prevalence of Systemic Lupus Erythematosus (SLE) and Associated Comorbidity in the 2011-2015 Medicare Population

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Introduction

- Systemic lupus erythematosus (SLE) is an autoimmune disease in which the immune system attacks its own tissues and causes widespread inflammation and tissue damage.
- An estimate based on the 2005 US population showed SLE affecting 161,000-322,000 adults (Helmick et al., 2008). An estimate based on 2003-2007 5% Medicare data reported prevalence in Medicare patients of 3 per 1000 patients (Garris et al., 2015).

Objective

- To update the estimate of SLE prevalence and associated comorbidity in the US Medicare population

Methods

- We used the 2010-2015 20% Medicare sample data. For each cohort year (2011-2015), we required patients to have Medicare Parts A/B coverage, not have Medicare Advantage, and be alive for the entire preceding year and through the first day of the cohort year.
- Using ICD-9-CM diagnosis code 710.0 and ICD-10 codes M32.1, M32.8, and M32.9 (for 2015), we defined SLE by presence of a diagnosis code on ≥1 inpatient or ≥2 outpatient claims separated by ≥30 days.
- The baseline period, 1 year before each SLE cohort year, was used to define comorbid conditions including: anemia, chronic kidney disease (CKD), hypertension, rheumatoid arthritis (RA), etc.
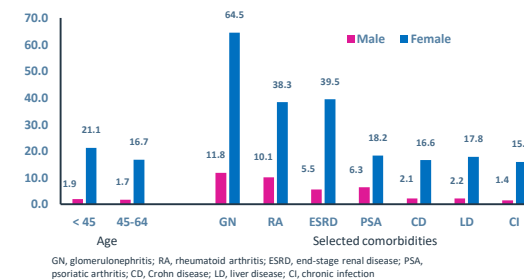- SLE prevalence was reported as the number of SLE patients per 1000 Medicare population.

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Results

Table 1. Baseline Characteristics in 2015 20% Medicare Sample

	Non-SLE		SLE	
	%	N	%	N
All		6,333,180		21,652
Age (mean years, SD)	72.3 (12.6)		63.7 (14.9)	
Female	56.9	3,603,533	89.4	19,356
White	84.2	5,330,297	70.2	15,205
Black	9.4	594,500	21.9	4734
Other race	6.4	408,383	7.9	1,713
Comorbid conditions				
Diabetes	23.4	1,481,478	23.8	5161
Arteriosclerotic heart disease	16.2	1,023,519	19.5	4217
Congestive heart failure	8.2	519,513	14.0	3021
Peripheral vascular disease	10.6	674,466	19.9	4318
Anemia	13.8	874,419	32.5	7030
Hypertension	54.1	3,427,585	66.0	14,298
CKD	11.3	716,876	26.0	5621
ESRD	1.2	75,825	7.1	1536
Liver disease	1.2	76,463	3.6	784
Inflammatory conditions				
Glomerulonephritis	0.5	31,568	5.2	1122
Chronic infection	0.6	38,046	1.3	271
Crohn's disease	0.3	18,348	0.9	185
Ulcerative colitis	0.3	18,397	0.7	150
Gout	2.6	166,225	4.0	874
Rheumatoid arthritis	1.9	122,795	17.9	3871

Note: except for diabetes, all other characteristics are significantly different between SLE and non-SLE.
SD, standard deviation; CKD, chronic kidney disease; ESRD, end-stage renal disease

Figure 1. Prevalence of SLE in 2014 (per 1000 population), by sex and selected variables
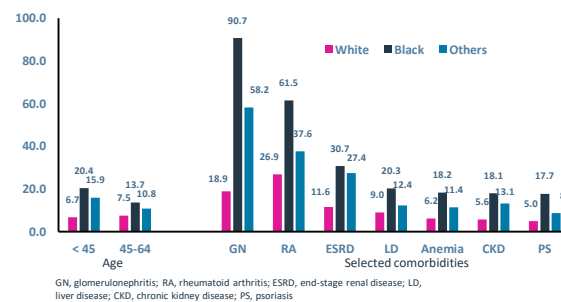

GN, glomerulonephritis; RA, rheumatoid arthritis; ESRD, end-stage renal disease; PSA, psoriatic arthritis; CD, Crohn disease; LD, liver disease; CI, chronic infection

Table 2. Prevalence of SLE in 2011-2015 20% Medicare Sample

Cohort year	2011	2012	2013	2014	2015
Eligible Medicare beneficiaries	5,871,667	5,884,921	5,935,011	6,000,841	6,354,832
N with SLE	19,299	20,071	20,557	21,212	21,652
	Number of SLE per 1000 population				
Overall	3.29	3.41	3.46	3.53	3.41
Age, years					
<45	9.98	10.40	10.51	10.72	10.48
45-64	8.75	8.81	8.83	8.95	8.69
65-74	2.50	2.61	2.63	2.72	2.65
75-84	1.94	2.02	2.09	2.10	2.19
85+	1.01	1.10	1.15	1.17	1.21
Sex					
Male	0.85	0.85	0.86	0.87	0.84
Female	5.20	5.45	5.56	5.70	5.34
Race					
White	2.76	2.86	2.89	2.95	2.84
Black	7.48	7.73	7.96	8.07	7.90
Other	3.88	4.13	4.14	4.27	4.18
Selected conditions					
Glomerulonephritis	39.70	37.91	37.31	37.61	34.32
Rheumatoid arthritis	28.35	30.30	30.89	31.55	30.56
ESRD	19.41	19.23	19.77	20.46	19.85
Crohn's disease	11.17	12.10	11.12	11.07	9.98
Liver disease	10.17	9.67	10.46	10.53	10.15
Anemia	7.37	7.68	7.94	8.17	7.98
Ulcerative colitis	7.18	7.38	6.21	8.02	8.09
Chronic kidney disease	7.76	7.83	8.04	8.00	7.78
Chronic infection	6.82	6.98	7.19	6.75	7.07
Hypertension	3.88	4.06	4.15	4.26	4.15

Figure 2. Prevalence of SLE in 2014 (per 1000 population), by race and selected variables

GN, glomerulonephritis; RA, rheumatoid arthritis; ESRD, end-stage renal disease; LD, liver disease; CKD, chronic kidney disease; PS, psoriasis

Summary

- We included ~6 million Medicare beneficiaries each year. Demographics and baseline characteristics were similar across years. In the 2015 cohort (Table 1),
  - SLE patient mean age was 63.7 (±14.9) years, 89.4% were female, 21.9% were black; comorbidity percentages were 32.5% anemia, 26.0% CKD, 7.1% ESRD, and 17.9% RA.
  - Non-SLE patient mean age was 72.3 (±12.6) years, 56.9% were female, 9.4% were black; comorbidity percentages were 13.8% anemia, 11.3% CKD, 1.2% ESRD, and 1.9% RA.
- Average SLE prevalence was 3.4 per 1000 Medicare population (Table 2). Prevalence was higher for ages <45 years, women, and black patients, and for patients with selected baseline conditions. For example, in 2014, SLE prevalence in patients with the following conditions was 37.6, GN; 31.6, RA; 20.5, ESRD; 13.6, psoriatic arthritis; 11.1, Crohn's disease; and 10.5, liver disease.
- SLE prevalence in younger patients with conditions such as GN, RA, or ESRD was much higher in female and non-white patients (Figures 1–2).

Conclusions

- Average SLE prevalence was 3.4 per 1000 Medicare beneficiaries. Prevalence in patients with kidney-related diseases or rheumatoid arthritis was 3-10 times the average overall and about 20-30 times the average in women or black patients.
- These results underscore the need for effective treatment and management of comorbid conditions in the aging SLE population.
- Results are limited to the Medicare population and may not be generalizable to the US population.

References

- Helmick et al. Estimates of the prevalence of arthritis and other rheumatic conditions in the United States. Part I. Arthritis Rhem. 2008;58:15-25.
- Garris et al. The prevalence and burden of SLE in a Medicare population: retrospective analysis of Medicare claims. Cost Eff Resour Alloc. 2015;13:9.