

Healthcare Costs Associated With Systemic Lupus Erythematosus in the 5-year Period Prior to Diagnosis of End-Stage Kidney Disease

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Introduction

- Systemic lupus erythematosus (SLE) is a chronic multisystem autoimmune disease, that can affect any organ system¹
- A common manifestation of SLE is inflammation of the kidneys, which affects up to 60% of patients with SLE²
- Furthermore, up to 40% of patients with SLE develop lupus nephritis (LN), many of whom progress to end-stage kidney disease (ESKD)³
- Despite a high burden of ESKD in patients with SLE, data on the associated healthcare costs are lacking

Objective

To describe the healthcare costs for patients with SLE in the 5 years prior to ESKD diagnosis, in the USA

Methods

- This retrospective observational study (GSK Study 215295) used data collected from 2 US administrative claims databases, IBM MarketScan Database (Database 1) and Optum Research Database (Database 2), from March 2011 through to December 2019

Inclusion criteria

Patients were adults (≥18 years of age):

- Newly diagnosed with ESKD (International Classification of Disease diagnosis codes [ICD] 9 or ICD-10) based on ≥1 medical claim
- Previous SLE diagnosis (ICD-9 or ICD-10) 12 months prior to the ESKD diagnosis, based on:
 - ≥2 outpatient medical claims at least 30 days apart, or
 - ≥1 inpatient or emergency department claim



Study Period

Patients with at least 5 years of continuous enrollment before ESKD diagnosis were identified and healthcare costs (2019 US dollars) for these patients were analyzed

Disclosures

AG and SH were employees of GSK and held stocks and shares in the company. CFB is an employee of GSK and holds stocks and share in the company.

Results

Patient demographics and clinical characteristics

- In total, 1356 (Database 1) and 425 (Database 2) patients with SLE had an ESKD diagnosis (Figure 1)
- In both databases, most patients were female, and the mean age was approximately 46 years (Figure 1)
- Approximately half of patients had severe SLE at the time of ESKD diagnosis and the majority had renal involvement and LN prior to ESKD (Figure 1). Most patients visited a nephrologist (≥1 visit: 63.2% in Database 1 and 47.1% in Database 2)

Figure 1. Patient demographics and clinical characteristics at the time of ESKD diagnosis

	Database 1 (N=1356)	Database 2 (N=425)
Age (years), mean (SD)	46.7 (12.3)	46.3 (14.0)
Female, n (%)	1109 (81.8)	336 (79.3)
Geographic region, n (%)		
Northeast	223 (16.8)	32 (7.6)
South	664 (50.2)	230 (54.4)
Midwest	228 (17.2)	86 (20.3)
West	209 (15.8)	75 (17.7)
Quan-Charlson Comorbidity Score, mean (SD)	2.95 (1.9)	3.05 (2.0)
SLE disease severity,* n (%)		
Mild	64 (4.7)	19 (4.5)
Moderate	598 (44.1)	184 (43.3)
Severe	694 (51.2)	222 (52.2)
SLE renal involvement (by organ system), n (%)	1096 (80.8)	343 (80.7)
Patients with LN† prior to ESKD, n (%)	966 (71.2)	303 (71.3)

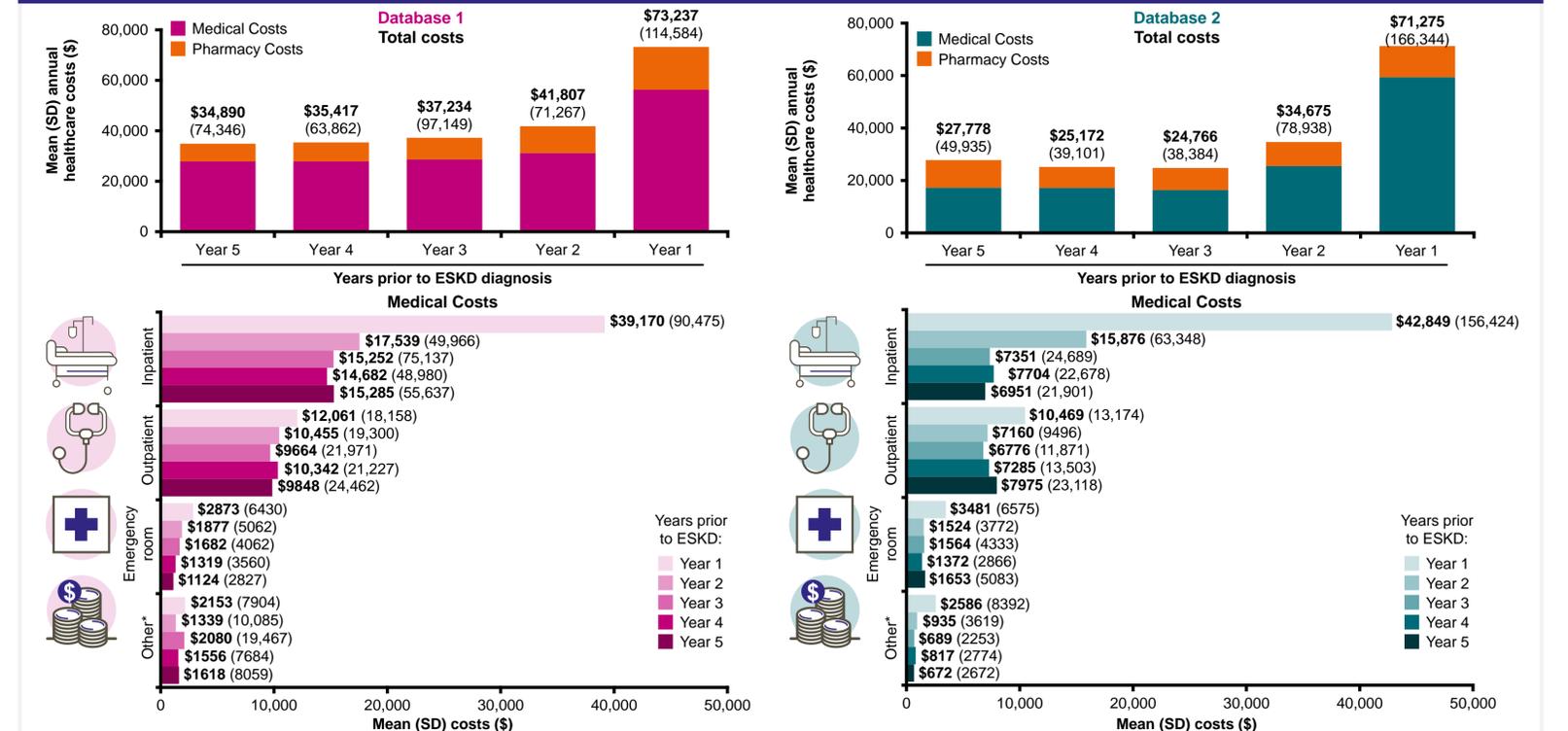
*Mild, moderate and severe SLE were defined using a previously published algorithm^{4,5}; †patients with LN were defined as having two pre-specified renal codes at least 30 days apart and within 6 months⁶

- Of the identified patients with SLE and ESKD diagnosis, 616 in Database 1 and 204 in Database 2 had at least 5 years of continuous enrollment prior to ESKD diagnosis

Healthcare costs (Figure 2)

- In both databases, healthcare costs were at their highest in the year prior to ESKD diagnosis
- Medical costs represented the greater share of total costs as compared with pharmacy costs

Figure 2. Healthcare costs in the 5 years prior to ESKD diagnosis (N=616 [Database 1] and N=204 [Database 2])



*Other costs included ambulance, assisted living facilities, comprehensive rehabilitation facilities, custodial care facilities, hospice/home care services, intermediate care facilities, psychiatric facilities, and skilled nursing facilities

Study Limitations

- Observational analyses are subject to limitations including variable definitions based on the presence of codes on administrative claims (ie, medical and pharmaceutical claims)
- Results are derived from commercially insured patients; as such, results may not be reflective of a Medicare (or other insurance type) population

Conclusions

- Our study demonstrates that patients with SLE who were newly diagnosed with ESKD incurred increasingly higher healthcare costs over time as patients approached the diagnosis of ESKD
- All healthcare costs, including medical (outpatient, inpatient, emergency room, and other costs) and pharmacy costs, were the highest in the year preceding ESKD diagnosis
- These findings demonstrate a substantial economic burden associated with SLE and renal involvement, highlighting the need for treatments that modify the course of renal progression to ESKD

Acknowledgments

This study was funded by GlaxoSmithKline (GSK Study 215295). Medical writing support for poster development was provided by Nicholas Thomas, PhD, of Fishawack Indicia Ltd, UK, part of Fishawack Health, and was funded by GSK.

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