EE618

Healthcare Resource Utilisation and Economic Burden Associated with Lupus Nephritis in China: A National Claims Database Study

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Introduction

- Lupus nephritis (LN) is one of the most common and severe complications of systemic lupus erythematosus (SLE) [1]
- LN occurs more frequently in patients with SLE of Asian ethnicity (30–40% to as high as 40–82%) compared with Caucasian patients (20–38%) [2–5]
- Patients with LN can experience permanent kidney damage (end-stage kidney disease [ESKD]) requiring dialysis and transplantation[1]
- This study evaluated the healthcare and economic burden of LN in mainland China

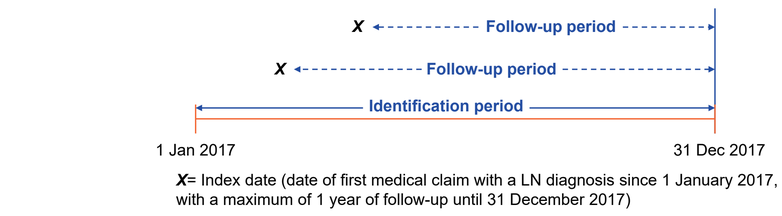
Objective

To evaluate healthcare resource utilisation (HCRU) and healthcare costs among patients with LN, with and without ESKD, in China

Methods

- This retrospective, real-world claims database analysis used the 2017 China Health Insurance Research Association national claims database (**Figure 1**), which includes nationwide data from all three types of public health insurance schemes, sampled from cities and hospitals at different levels across the country for 1 year
- Patients diagnosed with LN were included
- All-cause and LN disease-specific HCRU and costs were evaluated (calculated per-patient-per-month [PPPM] to account for variable follow-up) and described among patients with LN, with and without ESKD
- Disease-specific treatment patterns were described among patients with LN, with and without ESKD

Figure 1. Study design



X= Index date (date of first medical claim with a LN diagnosis since 1 January 2017, with a maximum of 1 year of follow-up until 31 December 2017)

Patients with LN:
Identified using diagnosis keywords or a combination of SLE and nephritis International Classification of Disease-10 codes

Patients with ESKD:
Identified using diagnosis keywords, or patients with ≥1 dialysis during 2017, or patients with ≥1 kidney transplantation during 2017

Results

Patient characteristics

- Among the 404 identified patients with LN, most were female (82.9%), mean (SD) age was 45.0 (16.3) years and 35.1% had ESKD (**Table 1**)

Table 1. Patient demographics and clinical characteristics

	N=404
Age, years, mean (SD)	45.0 (16.3)
Female, n (%)	335 (82.9)
Length of follow-up, months, mean (SD)	10.2 (2.8)
Charlson Comorbidity Index score, mean (SD)	1.7 (1.7)
Insurance type, n (%)	
Urban Employee Basic Medical Insurance	306 (75.7)
Urban Resident Basic Medical Insurance*	98 (24.3)
Tier of cities†, n (%)	
Tier 1	83 (20.5)
Tier 2	82 (20.3)
Tier 3	132 (32.7)
Others	107 (26.5)
Population distribution by hospital level, n (%)	
Ever visited a tertiary hospital‡	347 (85.9)
Ever visited other hospitals	146 (36.1)
Total number of encounters for all patients, n (mean PPPM)	
All-cause	15,509 (3.5)
Disease-specific	6041 (1.4)
Pre-defined subgroups, n (%)	
ESKD	142 (35.1)

*Includes New Rural Cooperative Medical Insurance; †cities were classified into tiers according to their economic development, with Tier-1 cities having the highest level of economic development; ‡in China, tertiary hospitals are those of the highest tier, providing specialist services to a large area

HCRU

- Of the 404 patients with LN, 76.2% had at least one disease-specific outpatient visit; among these patients, the mean (SD) was 1.5 (1.9) visits PPPM
  - A smaller proportion of patients (60.6%) had at least one disease-specific inpatient admission; among these patients, the mean (SD) was 0.4 (0.4) visits PPPM
- Patients with ESKD had more all-cause and disease-specific outpatient healthcare visits PPPM than patients without ESKD and a numerically greater number of inpatient admissions, although no statistical comparison was performed (**Figure 2**)
- Inpatient admissions PPPM were more than twice as long among patients with ESKD compared with patients without ESKD for disease-specific stays (**Figure 2**)

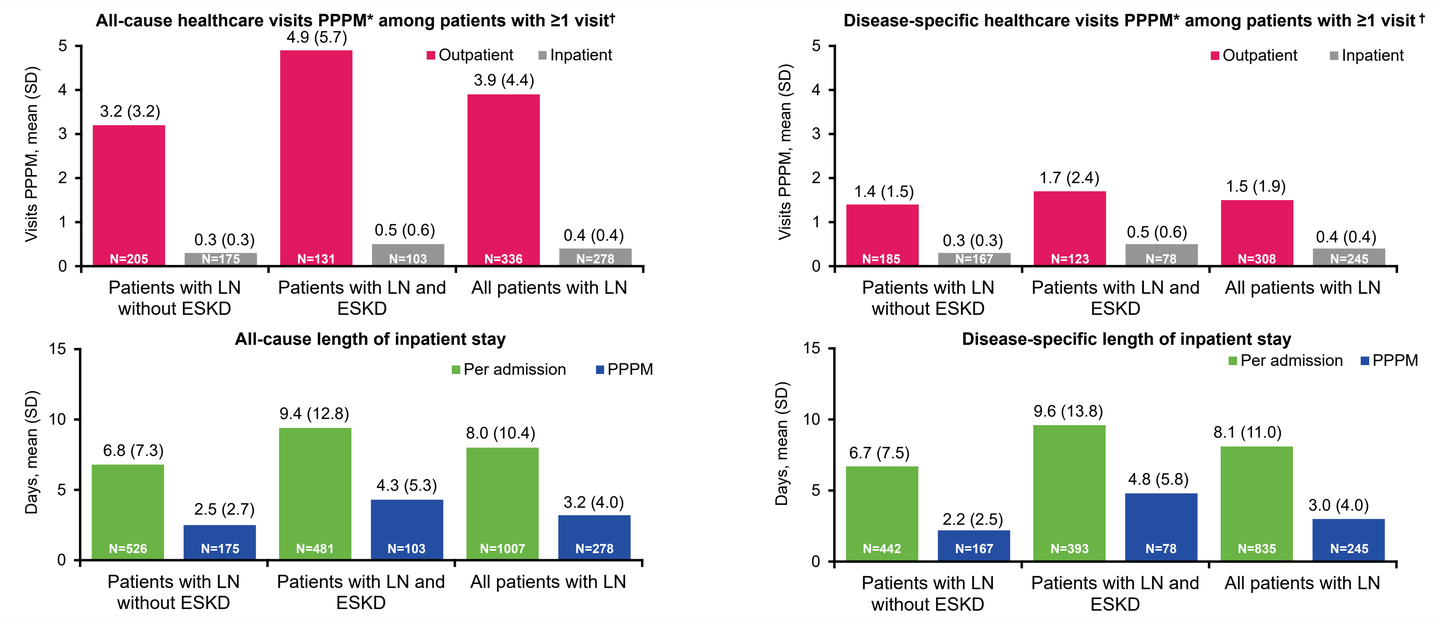
Healthcare costs

- Mean (SD) total all-cause healthcare costs were 3200.82 (4738.98) CNY PPPM (**Figure 3**; median: 1749.58 CNY PPPM)
- Mean (SD) total disease-specific healthcare costs were 2411.59 (4402.35) CNY PPPM (**Figure 3**; median: 1007.22 CNY PPPM)
  - Inpatient admissions accounted for 79.8% of total costs
  - Mean drug costs (1094.47 [2166.91] CNY PPPM) were slightly lower than non-drug costs (1317.12 [2683.55] CNY PPPM)
  - Mean costs per outpatient visit and inpatient admission were 417.01 (694.42) CNY and 8227.77 (14,158.35) CNY, respectively
- Patients with ESKD incurred more than 2 times the total disease-specific healthcare costs of patients without ESKD (3634.25 [5854.41] CNY PPPM vs 1748.93 [3186.68] CNY PPPM; **Figure 3**)
  - Mean drug costs PPPM accounted for 38.3% and 53.4% of total costs for patients with and without ESKD, respectively
- Patients with ESKD incurred 1.5 times the mean (SD) costs of patients without ESKD per inpatient admission (10,046.13 [16,462.42] vs 6610.99 [11,516.66] CNY, respectively) and 1.3 times the costs per outpatient visit (468.21 [910.37] vs 374.00 [432.62] CNY, respectively) (**Figure 4**)
  - Non-drug costs accounted for 65.7% of overall costs per disease-specific inpatient admission among patients with ESKD, versus 55.0% for patients without ESKD

Disease-specific treatment patterns

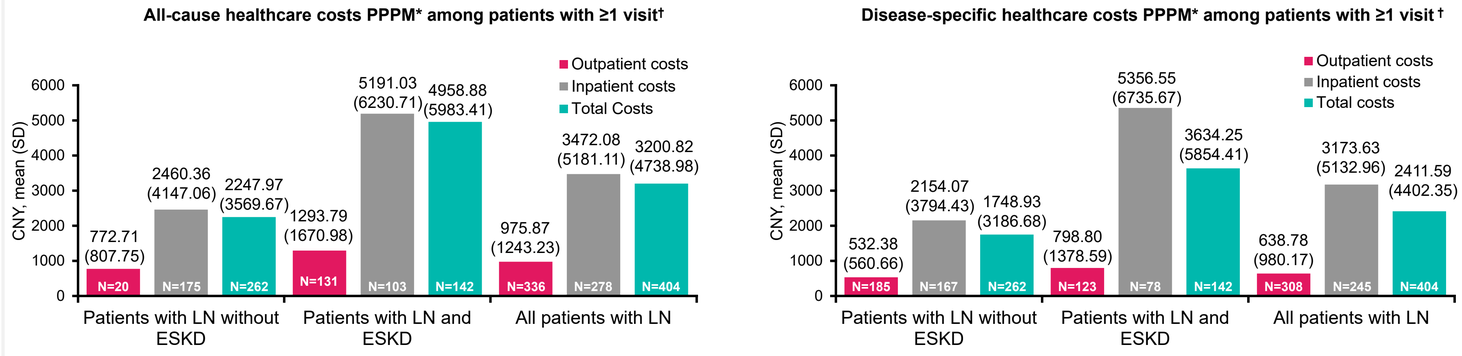
- Of the 404 patients with LN, 65.1% used corticosteroids, 44.3% used antimalarials, and 35.6% used immunosuppressants (other than cyclophosphamide) during the follow-up period (**Figure 5**)

Figure 2. All-cause and disease-specific HCRU among patients with LN with ≥1 visit†



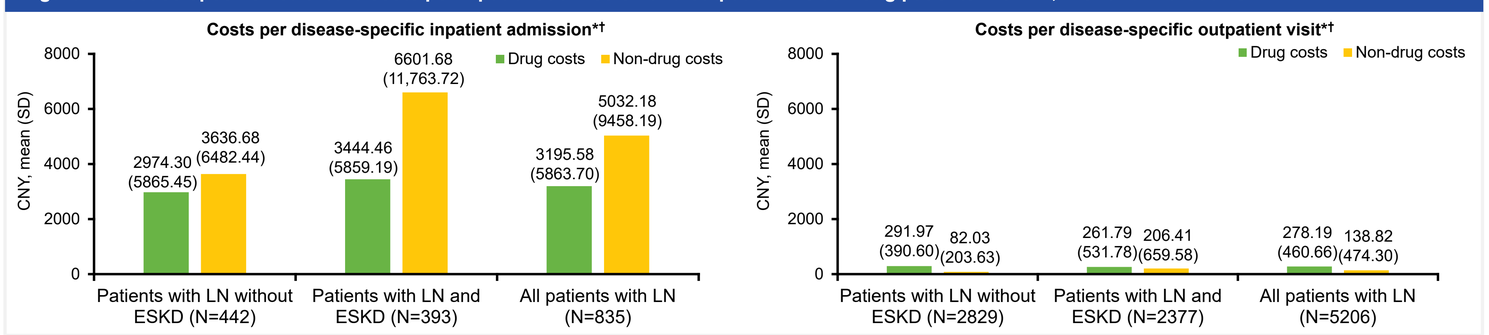
*Patients could have both outpatient visits and inpatient admissions; †outpatient and inpatient data represent patients with ≥1 visit in the respective category

Figure 3. All-cause and disease-specific healthcare costs PPPM among patients with LN, with and without ESKD with ≥1 visit†



*Patients could incur outpatient and inpatient, as well as drug and non-drug costs; †outpatient and inpatient data represent patients with ≥1 visit in the respective category

Figure 4. Disease-specific healthcare costs per inpatient admission and outpatient visit among patients with LN, with and without ESKD

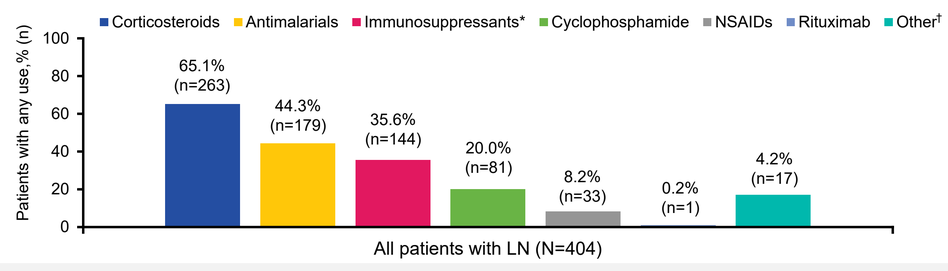


*Patients could incur outpatient and inpatient, as well as drug and non-drug costs; †N denotes the total number of visits patients had

Limitations

- Given the heterogeneity of SLE, not all costs attributable to SLE may have been coded as such in insurance claims data; considering only disease-specific costs underestimates the total burden of disease
- Only 1 year (2017) of data were available; therefore, use of recently approved therapies in China (e.g. belimumab) have not been captured in this study

Figure 5. Disease-specific treatment patterns for all patients with LN



*Other than cyclophosphamide; †other disease-specific treatment includes Tripterygium glycosides, Tripterygium wilfordii piece and sulfasalazine

Conclusions

- In China, patients with LN incurred a substantial HCRU and economic burden, and this burden was greater among patients with ESKD than those without
- The results of this study highlight the need for early diagnosis and more effective interventions to prevent the progression of LN into ESKD and mitigate the downstream economic burden associated with disease progression

Disclosures

XH is an employee of GSK. **ZT**, **KG** and **PJ** are employees of GSK and hold shares in the company. **XZ**, **SH** and **ZW** have no disclosures to report.

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