

Disparities in Incidence, Real World Treatment Patterns, and Medication Adherence Among Patients with Systemic Lupus Erythematosus (SLE) in the US: A Retrospective Claims & Electronic Health Records Analysis

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Introduction

Systemic Lupus Erythematosus (SLE) is an autoimmune disorder affecting musculoskeletal system, skin, kidneys, blood vessels, etc.. The pooled prevalence of SLE in the US is estimated to be about 72.8 per 100,000 population, and ethnic/ racial disparities have been evidenced in the prevalence of the disease. It is important to understand if there are disparities in the treatment patterns and medication adherence among SLE patients.

Objective

To gain insights into gender and racial/ ethnic disparities in incidence, real world treatment patterns, and medication adherence among SLE patients in the US

Methods

- A retrospective study using Optum® de-identified Market Clarity Dataset (linked claims and electronic health records or EHR of patients) was done among adult (≥ 18 years) patients with 2 or more claims and/ or EHR with SLE diagnosis (ICD-10 code M32) at least 30 days apart during 1 Jan 2018 to 30 Jun 2021
- Index date was defined as the first claim or EHR with SLE diagnosis. Only patients with no SLE diagnosis in claims or EHR during preceding 6 months from index date were included in the study
- All patients were followed-up for 12 months from index date to determine their SLE-specific treatment patterns and medication adherence. Total 6 SLE-specific treatments were considered: biologics, hydroxychloroquine, immunosuppressants/ immunomodulators, NSAIDs, systemic steroids, and topical steroids
- The study explores gender and racial/ ethnic disparities in incidence, comorbidity profile (using Charlson comorbidity index or CCI), treatment patterns (overall and biologics treatment rates), and medication adherence* (primary and secondary adherence) among SLE patients
- Primary medication adherence was defined as fill of first prescription (in pharmacy claims) of the SLE-specific drug within 30 days of being written/ prescribed by the physician (in EHR data). Secondary medication adherence was defined as whether the SLE patient received regular refills as prescribed by the physician during the 12-months follow-up period – this was assessed for primary adherent patients on biologics, hydroxychloroquine, and immunosuppressants/ immunomodulators only

Results

- A total of 24,469 SLE patients were included in the study. The incidence of SLE was significantly higher in females vs males, and in African Americans (AA) and Hispanics vs Caucasians and Asians. However, the mean age at SLE diagnosis was significantly lower in females vs males, and in African Americans, Hispanics, and Asians vs Caucasians. The mean CCI score is significantly higher in males (0.84) vs females (0.66) ($p < 0.0001$), and in African Americans (0.79) and Hispanics (0.71) vs Caucasians (0.66) and Asians (0.65)
- SLE-specific treatments:** About 86% ($n = 20,986$) patients received ≥ 1 SLE-specific treatments during the 12-months follow-up period. Majority of patients received hydroxychloroquine (47%), systemic steroids (45%), and NSAIDs (33%). Treatment rates for all 6 SLE-specific treatments were significantly higher in females (86%) vs males (83%) ($p < 0.001$). For biologics, treatment rates were higher in Caucasian and Hispanics (2% each), but for hydroxychloroquine and immunosuppressants/ immunomodulators, treatment rates were higher in Asians (54% and 29% respectively)

Fig 1: SLE incidence per 100,000

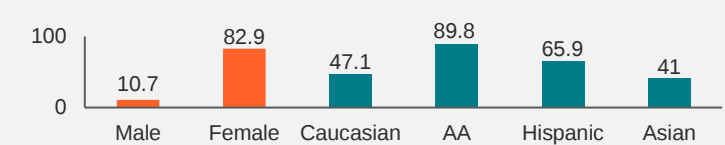
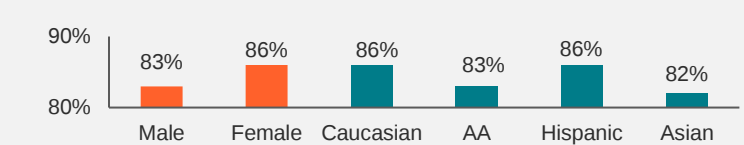


Fig 2: SLE treatment rates



- The **mean time to initiation of SLE-specific treatment** is not different among males and females but are significantly lower in Asians vs Caucasians, African Americans, and Hispanics. Only 2% patients received biologics – females, Caucasians, and Hispanics have higher treatment rates with biologics as compared to other groups. There is no correlation between CCI and treatment with biologics
- Healthcare interactions:** Nearly half of all patients consulted with Rheumatologist in the 12-months follow-up period. Further, 15% males vs 12% females, and 17% African Americans vs 15% Hispanics vs 11% Caucasians had SLE-related hospitalizations in the 12-months follow-up period
- Primary medication adherence:** Only 15% patients were primary adherent. Across all patient groups, the adherence was highest for immunosuppressants/ immunomodulators (13%), followed by biologics (11%) and systemic steroids (10%). The adherence rate for biologics was significantly higher among females (12%) vs males (6%), and Asians (20%) and African Americans (18%) vs Caucasians (11%)
- Secondary medication adherence:** About 64% patients on biologics, 30% on hydroxychloroquine, and 25% on immunosuppressants/ immunomodulators were secondary adherent. The adherence rates for biologics were significantly higher among females (63%) vs males (50%) and in Caucasians (62%) and Hispanics (60%) vs African Americans (44%)

Fig 3: Primary treatment adherence to biologics

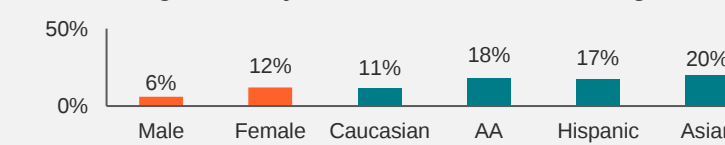
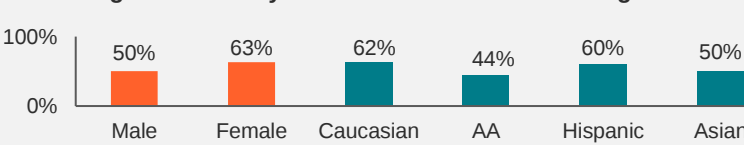


Fig 4: Secondary treatment adherence to biologics



Conclusion

- There are significant gender and racial/ ethnic disparities in the treatment patterns and medication adherence among SLE patients. The treatment rates were higher among females and Caucasians. Further, primary medication adherence was higher among females and Asians while secondary adherence to biologics was higher among females and Caucasians. There is need for research to explore role of affordability in these racial/ ethnic disparities



*Raebel MA, Schmittiel J, Karter AJ, Konieczny JL, Steiner JF. Standardizing terminology and definitions of medication adherence and persistence in research employing electronic databases. Med Care. 2013 Aug;51(8 Suppl 3):S11-21. Available at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3727405/>