How Serious Are Serious Infections in Lupus? A Nationwide Analysis

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The first step in reducing the burden of infection during lupus nephritis is understanding where and how it happens.
Source: Rheumatology Network

Up to 50% of patients with systemic lupus erythematosus (SLE) have a severe infection during their disease course, and these are among the leading causes of hospitalization and mortality in lupus.1-10 Patients with lupus nephritis (LN) appear to be particularly vulnerable.6,9,11-22

How can we reduce the burden of this complication? First, it’s important to understand it. Previous randomized trials and cohort studies have described infection rates in this population, but they have been limited by small sample sizes, exclusions and restrictions, and short follow-up periods.10,23-33 In the interests of improving early detection and treatment of these infections, we have studied the distribution of SLE and LN in a large racially and ethnically diverse nationwide cohort, the Medicaid Analytic eXtract (MAX) dataset, with billing claims and demographic information for Medicaid enrollees from 47 states and Washington, DC from 2000-2006.34-35

We identified 28,803 SLE patients and 5,140 with LN who were new users of (e.g. had not used within the prior six months) hydroxychloroquine (HCQ), oral or intravenous corticosteroids (CS), or immunosuppressants.

Here’s what we have found:

Composition of Medicaid patients with SLE or LN by race/ethnicity

In this Medicaid population, serious infections requiring hospitalization were most common in

- older patients (51-64 years);
- those who are White, African American and Native American;
- those living in the Midwest,
- those with low socioeconomic status; and
- patients with multiple SLE-related comorbidities.

Predominant infectious conditions were as follows:
Infection types in patients with SLE and LN

**Bacterial:** pneumonia, cellulitis and bacteremia  
**Fungal:** systemic candidiasis  
**Viral:** herpes zoster  
**Mycobacterial:** tuberculosis.

We found that **new use of corticosteroids is associated with the highest rates of serious infections in patients with SLE or LN.** These rates are significantly higher than those for patients taking HCQ alone.

- The incidence rate of infections in SLE patients newly receiving corticosteroids was 21 per 100 person-years (4.2 times higher than those receiving HCQ alone).
- The incidence rate of infections in LN patients receiving corticosteroids was 44 per 100 person-years (nearly 3 times higher than those receiving HCQ alone).
- Compared to rheumatoid arthritis patients receiving corticosteroids in a similar size cohort, incident rates among SLE patients were nearly 5 times higher and among those with LN, fully 10 times higher.\(^{36}\)

**Infections in patients with new CS Rx:**

**SLE:** 4.2x those on HCQ alone  
**LN:** ~3x those on HCQ alone

**What needs to be done next?**
We intend to:

1. account for confounding by indication in drug prescribing using propensity score adjusted analyses  
2. compare incidence rates of infections among SLE and LN patients by specific medication use, and  
3. assess corticosteroid use by administration route, dose, and duration.

**References:**


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