

Title

CORTICOSTEROID USE, INFECTION, AND ADVERSE EVENTS AMONG IMMUNOGLOBULIN A NEPHROPATHY (IgAN) PATIENTS IN A US REAL-WORLD SETTING

Authors/affiliations

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Introduction

Despite inconsistent data on effectiveness and well-known severe side-effects including infections, corticosteroids are often used to treat IgAN due to a lack of alternative options. The aim of this study is to characterize rates of infection and other adverse events (AEs) among IgAN patients who received steroids versus those who did not.

Methods

This was a descriptive, retrospective cohort study with adult (≥ 18 years) patients in the Optum[®] de-identified Electronic Health Record dataset (EHRs) between 2007 and 2019. We applied natural language processing to physician notes and selected patients with at least two IgAN records without any secondary or negative notion; the first record was considered the index date. In addition, we only included patients with a record of kidney biopsy captured via the International Classification of Diseases version 9 and 10 clinical modification (ICD-9-CM, ICD-10 CM) codes. The follow-up period was 12 months after the index date. Corticosteroid use was determined via the National Drug Codes (NDC), while infections (all types) and selected corticosteroid-related AEs such as osteoporosis, hypertension and diabetes were identified through the corresponding ICD-9-CM and ICD-10 CM codes. Annualized AEs rates among patients who were on corticosteroids and those who were not were reported. Because prescription information were incomplete in Optum EHRs, two analyses were performed: for patients with any prescription information and on a subset of those with minimum prescription information available (i.e. at least 1 prescription with information on days of supply available).

Results

The final study cohort consisted of 1,189 patients with a mean age of 48.5 years; 57.7% were male and 7.0% Asian. The annualized infection rates ranged from ~2.6 to 3.5 times higher among patients who were on corticosteroids versus those who were not, and this was true for patients with any prescription information and for those with minimum prescription information available (3.2 vs. 0.9 and 2.3 vs. 0.9, respectively). Similar trends were observed for the other AEs. The annualized rates for osteoporosis were 1.4 to 3.3 times higher among patients on corticosteroids, 1.9 to 2.5 times higher for hypertension and 2.0 to 2.7 times higher for diabetes, by corticosteroid use and treatment information (Figure 1).

Annualized infection and other AE rates for patients with IgA Nephropathy, by corticosteroid treatment status

	All Patients	Patients on corticosteroids after index	Patients not on corticosteroids after index
Analysis 1: Patients with kidney biopsy and any available prescription information			
Patients (n, %)	1189	593 (49.9)	596 (50.1)
Annualized rates per patient (n, SD)			
infections	2.0 (6.3)	3.2 (8.2)	0.9 (3.2)
osteoporosis	0.2 (1.2)	0.3 (1.6)	0.1 (0.6)
hypertension	6.7 (12.3)	9.6 (15.8)	3.8 (6.0)
diabetes	3.3 (12.4)	4.8 (16.4)	1.8 (5.9)
Analysis 2: Patients with kidney biopsy and at least 1 prescription with days of supply information available			
Patients (n, %)	324 (27.2)	188 (15.8)	136 (11.4)
Annualized rates per patient (n, SD)			
infections	1.7 (4.8)	2.3 (5.4)	0.9 (3.7)
osteoporosis	0.1 (0.5)	0.1 (0.6)	0.1 (0.5)
hypertension	6.8 (10.8)	8.5 (13.0)	4.4 (5.7)
diabetes	3.0 (8.3)	3.9 (9.8)	1.9 (5.6)

Note: Annualized rates were calculated as: the number of events within follow-up (diagnosis on different dates) / total person-years in the follow-up, patients with different diagnostic codes for the same events were counted only once.

Conclusion

In this analysis, IgAN patients treated with corticosteroids experienced a higher rate of infections and other AEs versus those not treated. These findings highlight a need for targeted non-steroidal interventions that can reduce treatment burden and delay the progression of this disease at the same time.

