Hospitalization Costs in Schizophrenia: Long-acting Injectable (LAI) versus Oral Antipsychotic Use

Mallik Greene, PhD, DBA[1]; Jessie Tingjian Yan, PhD[2]; Eunice Chang, PhD[2]; Ann Hartry, PhD[3]; Michael S. Broder, MD, MSHS[2]

[1]Otsuka Pharmaceutical Development & Commercialization, Inc., Princeton, NJ, USA;
[2]Partnership for Health Analytic Research, LLC, Beverly Hills, CA, USA; [3]Lundbeck, Deerfield, IL, USA

Introduction

- Schizophrenia is a chronic mental disorder which affects approximately 1% of the US adult population.[1]

- Schizophrenia accounts for 1.5-3% of national healthcare expenditures.[2]
  - Hospitalization is a major driver of healthcare costs and is also a useful proxy for relapse.[1]
- Antipsychotics are the cornerstone of pharmacological treatment of schizophrenia. Studies of the economic effectiveness of long-acting injectable antipsychotics (LAIs) versus oral antipsychotics in reducing hospitalization costs have been inconclusive.

Objective

The aim of this study was to compare hospitalization costs between Medicaid patients diagnosed with schizophrenia who initiated an LAI and those who changed from one oral antipsychotic to another.
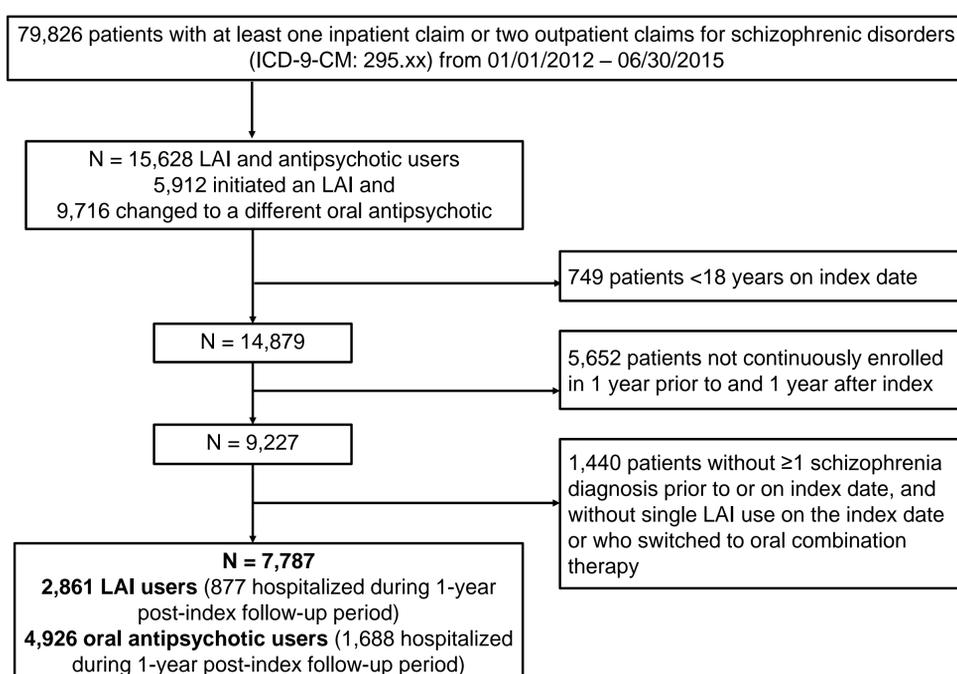
Methods

- Retrospective cohort analysis using Truven Health Analytics MarketScan® Medicaid claims database
- Patient identification
  - Existing or newly diagnosed patients with schizophrenia (≥1 inpatient or ≥2 outpatient claims for ICD-9-CM code 295.xx)
  - LAI cohort:
    - Initiated one of the following LAIs during the ID period (01/01/2013 to 06/30/2014):
      - aripiprazole, haloperidol, paliperidone, risperidone, fluphenazine, olanzapine
    - Index date: first LAI use
    - No index LAI use 1 year prior to the index date (use of a different LAI was allowed)
  - Oral Cohort
    - Patients with schizophrenia who changed from one oral antipsychotic to another during the same period.
    - Index date: The date of the first prescription fill claim for a new oral antipsychotic was the index date.
  - Additional inclusion criteria
    - Schizophrenia diagnosis before index date
    - 1-year pre-index (baseline) and 1-year post-index continuous enrollment
  - Exclusion criteria
    - <18 years old on index date
- Outcome measure
  - All-cause hospitalization costs over 1-year post-index period
- Statistical analysis
  - A linear regression model was conducted to estimate hospitalization costs.
  - Models adjusted for patient demographic and clinical characteristics, baseline medication, and baseline emergency department (ED) visits or hospitalizations

Results

- 2,861 (36.7%) LAI and 4,926 (63.3%) oral users were identified (Figure 1).
- Compared to oral users, LAI patients were younger (mean (SD): 39.9 (13.2) years vs. 42.7 (13.1) years; p<0.001), had a lower mean Charlson Comorbidity Index score, and were less burdened by psychiatric and somatic comorbidities (Table 1).
- Of the 877 LAI initiators and 1,688 oral users who were hospitalized during the 1-year post-index follow-up period,
  - The unadjusted mean hospitalization costs for LAI and oral users were $32,626 and $36,048, respectively.
  - The adjusted average hospitalization costs were $1,170 lower in LAI initiators than oral users (Figure 2).
  - None of the unadjusted or adjusted differences were statistically significant.
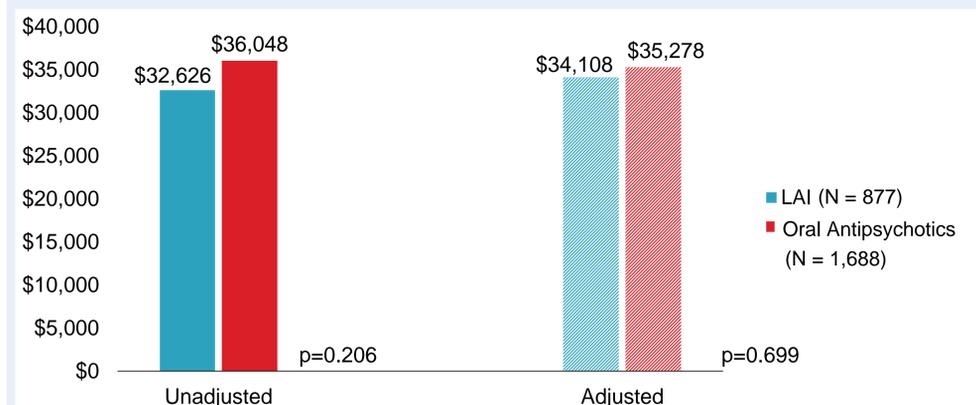
Figure 1. Patient Identification

79,826 patients with at least one inpatient claim or two outpatient claims for schizophrenic disorders (ICD-9-CM: 295.xx) from 01/01/2012 – 06/30/2015

N = 15,628 LAI and antipsychotic users
5,912 initiated an LAI and
9,716 changed to a different oral antipsychotic

749 patients <18 years on index date

N = 14,879

5,652 patients not continuously enrolled in 1 year prior to and 1 year after index

N = 9,227

1,440 patients without ≥1 schizophrenia diagnosis prior to or on index date, and without single LAI use on the index date or who switched to oral combination therapy

N = 7,787
2,861 LAI users (877 hospitalized during 1-year post-index follow-up period)
4,926 oral antipsychotic users (1,688 hospitalized during 1-year post-index follow-up period)

Results (cont'd)

Table 1. Patient Characteristics

	LAI	Oral Antipsychotic	All	P Value
	N = 2,861; 36.7%	N = 4,926; 63.3%	N = 7,787	
Demographics				
Age, year, mean (SD)	39.9 (13.2)	42.7 (13.3)	41.7 (13.3)	<.001
Female, n (%)	1,238 (43.3)	2,651 (53.8)	3,889 (49.9)	<.001
Race, n (%)				<.001
White	851 (29.7)	2,222 (45.1)	3,073 (39.5)	
African American	1,650 (57.7)	1,918 (38.9)	3,568 (45.8)	
Other	360 (12.6)	786 (16.0)	1,146 (14.7)	
Comorbidities				
Charlson comorbidity index, mean (SD)	1.1 (1.9)	1.7 (2.3)	1.5 (2.1)	<.001
No. chronic conditions, mean (SD)	3.5 (2.3)	4.5 (2.4)	4.2 (2.4)	<.001
Use of any oral anti-psychotic medication, n (%)	2,277 (79.6)	4,926 (100.0)	7,203 (92.5)	n/a
Psychiatric comorbidities, n (%)	2,190 (76.5)	4,134 (83.9)	6,324 (81.2)	<.001
Depression	1,300 (45.4)	2,744 (55.7)	4,044 (51.9)	<.001
Anxiety	1,019 (35.6)	2,240 (45.5)	3,259 (41.9)	<.001
Personality disorder	399 (13.9)	720 (14.6)	1,119 (14.4)	0.416
Substance abuse disorders	1,505 (52.6)	2,540 (51.6)	4,045 (51.9)	0.375
Bipolar disorders	1,028 (35.9)	2,182 (44.3)	3,210 (41.2)	<.001
Somatic comorbidities[a], n (%)	1,618 (56.6)	3,350 (68.0)	4,968 (63.8)	<.001
Healthcare utilization				
Any inpatient hospitalization or ED visit, n (%)	1,910 (66.8)	2,058 (74.1)	3,968 (70.4)	<.001

[a] Somatic comorbidities included obesity, diabetes, hyperlipidemia, and hypertension.

Figure 2. Unadjusted and Adjusted[a] Inpatient Hospitalization Costs among Hospitalized Patients[b] in 1-year Post-Index Period

Unadjusted: LAI $32,626, Oral Antipsychotics $36,048, p=0.206
Adjusted: LAI $34,108, Oral Antipsychotics $35,278, p=0.699

LAI (N = 877)
Oral Antipsychotics (N = 1,688)

[a] Adjusted by age group, gender, race (White vs. non-White), Charlson comorbidity index, number of chronic conditions, any baseline inpatient hospitalization or ED visit, depression, anxiety, bipolar, any use baseline psychiatric medication use, and any baseline somatic medication use.
[b] 877 LAI initiators and 1,688 oral users.

Limitations

- Schizophrenia was identified using claims, which are coded for reimbursement, not research, and misclassification may have occurred.
- Results may not be generalizable to non-Medicaid patient populations, and future studies are warranted to determine if outcomes would be different in different populations.

Conclusions

- This real-world study suggests that among patients hospitalized with schizophrenia during the year after treatment, hospitalization costs were lower in LAI initiators than in oral antipsychotic users, although the difference was not statistically significant.

References

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