

CHANGES IN MENTAL HEALTH-RELATED INSURANCE CLAIMS COSTS AMONG PATIENTS TREATED FOR BIPOLAR DISORDER

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Abstract

Objective: To evaluate pre- and post-treatment changes in mental health-related medical costs, emergency department (ED) visits, and inpatient admissions among adults with bipolar disorder treated with different classes of psychotropic drugs.

Methods: Analysis of claims data from a large database of US employees. Patients with bipolar disorder were classified into those using: atypical antipsychotics only (ATYP), conventional antipsychotics and/or mood stabilizers only (OTHER), and both ATYP and OTHER medications (BOTH). Controlled regression models were utilized to evaluate changes in mental health-related outcomes after initiation of treatment.

Results: The adjusted reduction in mental health-related medical costs was significantly greater with ATYP (-\$1,523, n=55) compared with BOTH (-\$38, n=369, P=0.002) and OTHER (-\$441, n=554, P=0.022). The ATYP group demonstrated a greater reduction (-11.5%) in mental health-related inpatient admissions than the OTHER group (-2.9%, P=0.076). The reduction in mental health-related ED visit rates for the BOTH group (-6.2%) was greater than for the OTHER group (-1.7%, P=0.008).

Conclusions: Atypical monotherapy (ATYP) for the treatment of bipolar disorder was associated with the greatest reduction in mental health-related medical costs, and combination therapy with other medications (BOTH) resulted in the greatest decrease in mental health-related emergency department visits. Thus, atypical antipsychotics play a significant role in the management of patients with bipolar disorder.

Introduction

Bipolar disorder is difficult to manage and costly for patients, employers, and insurance providers. The direct and indirect costs of bipolar disorder include lost productivity, inpatient and outpatient healthcare expenditure, and pharmacotherapy.¹⁻³

In previous studies of large, insured populations in the United States, the high mental healthcare expenditure for bipolar disorder was largely due to inpatient care.^{1,2} This suggests that better prevention or outpatient management could significantly lower costs.

Although pharmacotherapy has been shown to be cost effective,^{4,5} no large-scale analysis of the employed population has compared the impact of various pharmacotherapeutic options on mental health expenditure, including hospital admission and emergency department (ED) visits.

Objective

To evaluate pre- and post-treatment changes in 1) mental health-related medical costs, 2) ED visits, and 3) inpatient admissions among adults with bipolar disorder treated with different classes of psychotropic drugs.

Methods

Data Source

The Human Capital Management Services Research Reference Database was used to collect health insurance claims information (medical and prescription) from >300,000 employees of large US-based employers and their covered spouses.

Cohort Selection and Index Dates

Employees and spouses included in these analyses had an ICD-9 diagnostic code (primary, secondary, or tertiary) for bipolar disorder during 2001-2003 and at least 12 months of health insurance coverage following diagnosis.

Patients were grouped as:

- Those who took atypical antipsychotics only (ATYP; including aripiprazole, clozapine, olanzapine, olanzapine-fluoxetine combination, quetiapine, and ziprasidone)
- Patients who took other bipolar-related drugs (conventional antipsychotics, conventional mood stabilizers including carbamazepine, lithium, lamotrigine, divalproex, and other anticonvulsants such as zonisamide, tiagabine) and no atypical antipsychotics (OTHER)
- Patients who took both atypical antipsychotics and other bipolar-related drugs (BOTH)
- Patients who took no bipolar-related drugs for at least 6 months after the index prescription date (NONE)

Index prescription date: the date of the first bipolar-related prescription following diagnosis.

For the untreated cohort, the index prescription date is 121 days following diagnosis (based on the average time between diagnosis and the index prescription date in treatment cohorts).

All included patients had at least 6 months of health insurance coverage preceding and following the index prescription date.

Data Analysis

Pre- and post-treatment comparisons were made between the treatment cohorts using linear regression modeling that controlled for differences in age, gender, location, employee/spouse, prior comorbidity index, prior bipolar-specific medical costs, prior other medical costs, and index date.

Pre-treatment was defined as the 6-month period preceding the index prescription date. Post-treatment was defined as the 6-month period following the index prescription date. The difference between outcomes was determined for each outcome variable.

Separate regression models measured the following dependent variables: medical costs, the likelihood of a mental health-related inpatient hospital stay, and the likelihood of a mental health-related ED visit.

Results

Patient Characteristics

- During 2001-2003, a total of 1542 employees or spouses with bipolar disorder were identified. Demographic features are presented in **Table 1**.
- Patients taking atypical antipsychotics had the smallest proportion and patients taking combination therapy had the largest proportion of days with treatment available and number of days until a gap in treatment compared with the other active treatment group. Differences among all 3 groups were statistically significant (P<0.05) (**Table 2**).

Table 1. Demographic Features of Patients with Bipolar Disorder (N=1542)

	n	Mean	95% Confidence Interval for Mean	
			Lower Limit	Upper Limit
Age at index date*	1540	41.6	41.2	42.1
Tenure at index date**	938	10.2	9.7	10.8
Annual salary, \$	937	50,190	48,520	51,860
Employee, %	1542	60.8	58.4	63.3
Female, %	1542	63.4	61.0	65.8
Married [†] , %	853	46.8	43.4	50.1
Race				
White [†] , %	517	83.0	79.7	86.2
Black [†] , %	517	7.2	4.9	9.4
Hispanic [†] , %	517	6.0	3.9	8.0
Exempt [†] , %	903	22.8	20.1	25.6
Full-time [†] , %	938	90.8	89.0	92.7

*Index diagnosis date is first bipolar diagnosis within 2001-2003

[†]Reported only for employees, not for spouses

Table 2. Treatment Characteristics of Patient Cohorts

	Treatment Cohort			
	Atypicals	Other	Combination	None
Percentage of patients by treatment (n=1542)	5.0	41.4	25.0	28.7
Average percentage of days with medical supply available [†]	51.6	67.0	77.1	NA
Median number of days to the first ≥30-day gap in medication supply ^{††}	159.0	211.8	247.9	NA

[†]During the 12 months following the index prescription date

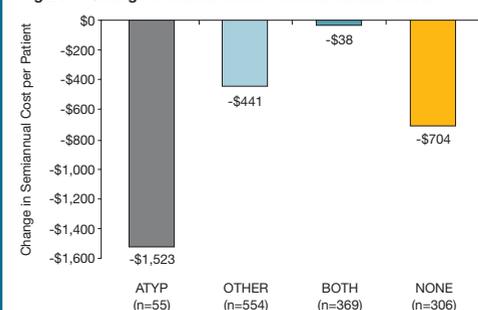
^{††}Differences among all 3 treatment groups were statistically significant (P<0.05)

NA=not applicable

Regression Modeling Results

- Significantly greater reductions in half-yearly mental health-related costs were attained in the ATYP group compared with OTHER (P=0.022) or BOTH (P=0.002) (**Figure 1**).

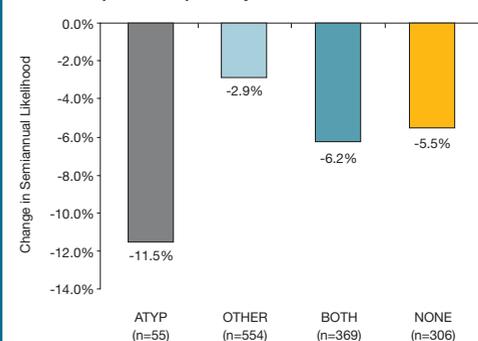
Figure 1. Change in mental health-related medical costs*



*Mental health-related costs were defined using ICD-9 codes from the Agency for Healthcare Research and Quality (AHRQ) "Mental Disorders" diagnostic category

- The ATYP group experienced the greatest reduction in likelihood of a mental health-related inpatient hospital stay (-11.5%). The ATYP and BOTH groups had an 8.6% and 3.3% difference from the OTHER group, respectively (**Figure 2**).

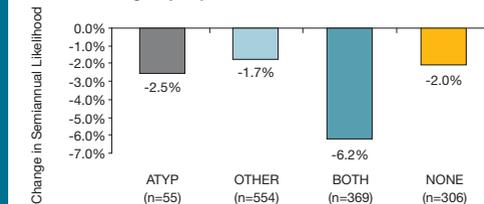
Figure 2. Change in likelihood of a mental health-related inpatient hospital stay*



*Mental health-related inpatient hospital stays were defined using ICD-9 codes designated as "Mental Disorder" by the AHRQ

- The BOTH group experienced the largest decrease in mental health-related ED visits (-6.2%). This reduction was statistically significantly greater than that of the OTHER (P=0.008) or NONE (P=0.031) groups (**Figure 3**).

Figure 3. Change in likelihood of a mental health-related emergency department visit



*Mental health-related emergency department visits were defined using ICD-9 codes designated as "Mental Disorder" by the AHRQ

Conclusions

- Atypical monotherapy (ATYP) for the treatment of bipolar disorder was associated with the greatest reduction in mental health-related medical costs
- Combination therapy (BOTH) with atypicals and other medications resulted in the greatest decrease in mental health-related emergency department visits
- Atypical antipsychotics play a significant role in the management of patients with bipolar disorder

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