

ASSOCIATION OF DISCHARGING SCHIZOPHRENIA PATIENTS ON AN ANTIPSYCHOTIC MEDICATION ON FUTURE ALCOHOL-RELATED READMISSIONS



Jerald Varona, PharmD Candidate¹, Jenny Liu, PharmD Candidate¹, Angineh Moradi Masihi, PharmD¹, Mona Keivani, PharmD¹, Nadrine Balady-Bouziane, PharmD², Patrick Chan, PharmD, PhD^{1,2}



1. Western University of Health Sciences, College of Pharmacy, Pomona, CA 2. Olive View-UCLA Medical Center, Sylmar, CA

BACKGROUND

- In SAMHSA's (Substance Abuse and Mental Health Services Administration) 2018 National Survey on Drug Use and Health, approximately 3.7% (9.2 million) of people over the age of 18 years old had both a substance use disorder and a mental illness.¹
- Estimates of the prevalence of schizophrenia in the United States range from 0.25-0.64%.² Although a relatively small prevalence, schizophrenia is associated with a high burden of cost compared to other medical conditions.³ Studies have estimated that of those with schizophrenia, approximately 24.3% had comorbid alcohol use disorder.⁴
- While the use of antipsychotics in treating schizophrenia is well-supported, there is a subset population of those with schizophrenia and comorbid alcohol abuse that is not well studied in terms of viable treatment options.
- A previous retrospective cohort study conducted at a single Los Angeles County Department of Health Services (LA County DHS) hospital showed a lower but non-significant reduction in future alcohol-related readmissions in patients discharged with an antipsychotic medication. The current study expanded to include additional DHS facilities.

STUDY OBJECTIVES & HYPOTHESIS

PRIMARY OBJECTIVE: The primary objective of this study was to determine whether there is an association between schizophrenia patients who were discharged from an inpatient hospital with an antipsychotic medication and a reduction in future alcohol-related readmissions.

SECONDARY OBJECTIVES: Secondary objectives include determining if there was an association with alcohol-related readmission and the type of antipsychotic the patient was discharged with, as well as examining predictive risk factors in relation to alcohol-related readmissions.

HYPOTHESIS: Discharging patients who are suffering from schizophrenia on an antipsychotic medication regimen will lead to a lower number of future alcohol-related readmissions.

METHODS

- A retrospective, chart-reviewed cohort study was conducted, which looked at patients hospitalized with schizophrenia from January 1, 2016 to December 31, 2018 at Los Angeles County DHS Hospitals, including Olive View-UCLA Medical Center in Sylmar, CA, Harbor-UCLA Medical Center in Torrance, CA, and LAC+USC Medical Center in Los Angeles, CA. Institutional review board approval was obtained by both Olive View-UCLA Medical Center and Western University of Health Sciences.
- A search query based on ICD-9/10 codes of schizophrenia was performed by the Olive View-UCLA Medical Center Information Systems Department to identify either schizophrenia-related or alcohol-related admissions. This list was then filtered through use of inclusion and exclusion criteria.
- Inclusion criteria:** patients 18 years or older and were admitted inpatient to either facility with a documented diagnosis of schizophrenia or schizoaffective disorder. **Exclusion criteria:** patients who were seen in the psychiatric emergency department but not admitted inpatient or did not have a documented clinical diagnosis of schizophrenia or schizoaffective disorder.
- The primary outcome, number of alcohol-related readmissions, was compared between 2 cohorts. Cohort 1 consisted of patients discharged with an antipsychotic medication while Cohort 2 were discharged without an antipsychotic.
- Unpaired t-tests were used for continuous variables and Chi-squared tests for categorical variables for baseline demographics. Chi-squared test was also used for the primary outcome, secondary outcome, and secondary predictors. Results are presented as relative risk ratio (RR) and odds ratio (OR) with 95% confidence intervals.
- Statistical analysis was conducted on GraphPad R Prism with two-tailed p-values considered significant if $p < 0.05$.

RESULTS

Table 1. Baseline characteristics and demographics at index admission of patients with schizophrenia discharged with an antipsychotic medication or discharged without an antipsychotic

Characteristic	Discharged w/ Antipsychotic (N = 508)	Discharged w/o Antipsychotic (N = 9)	P-value
Average Age \pm SD	40.7 \pm 14.7	45.7 \pm 16.9	0.41
Gender			
Male	59.4%	44.4	0.50
Female	40.6%	55.6	
Race			
White	13.6%	11.1%	0.48
African American	30.9%	55.6%	
Hispanic	18.1%	11.1%	
Other	36.8%	22.2%	
Homelessness	32.5%	44.4%	0.48
Smoking	45.9%	22.2%	0.19
Marijuana Use	31.1%	11.1%	0.29
Substance Use	32.1%	22.2%	0.73
Suicidal Ideation	14.4%	22.2%	0.63
Average # of Comorbidities \pm SD	1.2 \pm 1.3	1.6 \pm 1.3	0.40

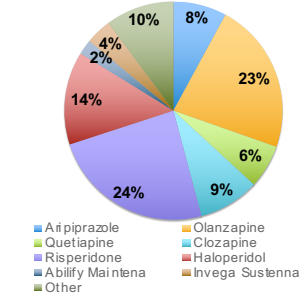


Figure 1. Distribution of antipsychotics prescribed to patients upon discharge. Displayed are the various antipsychotics used at the three LA County DHS Hospitals from 1/1/2016 to 12/31/2018. Patients may have been prescribed multiple medications at discharge.

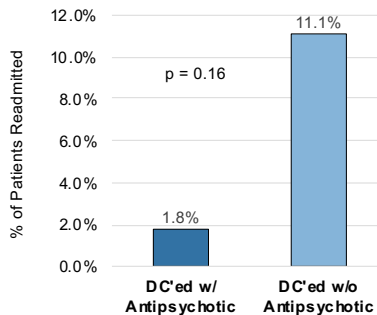


Figure 2. Percentage of alcohol-related readmissions Schizophrenia patients who were discharged with an antipsychotic were associated with a lower, but non-significant number of alcohol related-readmissions (1.8%) compared to those discharged without an antipsychotic (11.1%).

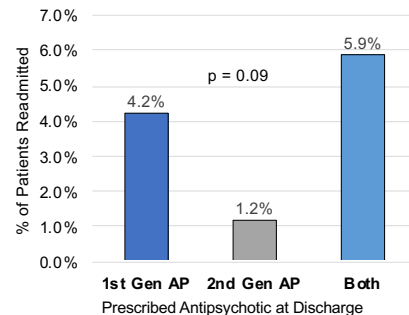


Figure 3. Percentage of alcohol-related readmissions compared to type of antipsychotic prescribed at discharge Patients who were discharged with a 2nd generation antipsychotic had a lower, but non-significant number of alcohol-related readmissions (1.2%) compared to those discharged with a 1st generation antipsychotic (4.2%) or both types (5.9%).

Table 3. Potential risk factors associated with future alcohol-related readmission in patients with schizophrenia

Characteristic	Readmitted (N = 10)	Not Readmitted (N = 507)	P value	RR (95% CI)	OR (95% CI)
Male	60.0%	59.2%	>0.99	1.03 (0.32 - 3.38)	1.04 (0.28 - 3.29)
Female	40.0%	40.8%			
Homelessness	40.0%	32.5%	0.74	1.37 (0.42 - 4.46)	1.38 (0.43 - 5.18)
Smoking	60.0%	45.2%	0.52	1.82 (0.49 - 5.77)	1.82 (0.49 - 5.77)
Marijuana	70.0%	30.2%	0.012	5.21 (1.48 - 18.28)	5.40 (1.48 - 19.35)
Substance Use	50.0%	31.6%	0.30	2.13 (0.67 - 6.79)	2.17 (0.70 - 6.69)
Suicidal Ideation	70.0%	13.4%	<0.0001	13.75 (3.93 - 47.78)	15.06 (4.04 - 54.13)
Outpatient Referral	70.0%	82.2%	0.40	0.51 (0.15 - 1.80)	0.50 (0.14 - 1.82)
Inpatient Psych Eval	100.0%	99.8%	>0.99	∞ (0.02 - ∞)	∞ (0.002 - ∞)
BH/SW Assessment	100.0%	94.3%	>0.99	∞ (0.17 - ∞)	∞ (0.17 - ∞)

DISCUSSION

- Patients with schizophrenia who were discharged with an antipsychotic showed a lower, but non-significant association with the number of alcohol-related readmissions compared to patients discharged without an antipsychotic ($p=0.16$, Figure 2).
- Of the patients discharged with an antipsychotic (N=508), those who were discharged with a 2nd generation antipsychotic showed a lower but non-significant number of alcohol-related readmissions in comparison to patients discharged on a 1st generation and those discharged with both types of antipsychotics ($p=0.09$, Figure 3). Risperidone and olanzapine were the most prescribed antipsychotics at discharge (Figure 1). The potential dopamine blockade of these drugs may further explain the lower readmission numbers in those who received 2nd generation antipsychotics.
- Subgroup analyses examining the association of potential risk factors and future alcohol-related readmissions demonstrated a significant increase in alcohol-related readmissions in patients who were also marijuana users ($p = 0.012$). This result makes sense given the higher risk of substance abuse in schizophrenia patients.
- Patients who reported current suicidal ideation or history of suicidal ideation at the time of their index admission had significantly higher alcohol-related readmissions ($p < 0.0001$). This upholds other studies' findings that history of alcohol use is a significant risk factor for increased suicidality in schizophrenia patients.⁵
- The sub-analyses examining other risk factors such as gender, race, homelessness, and substance use did not demonstrate a significant difference in readmission rates.
- Although non-significant, the primary results generally align with the hypothesis given a lower number of alcohol-related readmission was observed in the cohort discharged on an antipsychotic.

LIMITATIONS

- This was a retrospective study; therefore, some patient's medical records may have lacked complete documentation.
- There was no matching or control for potential biases or confounding done.
- Subjective data such as medical and social history were self-reported by the patients, which has the potential for recall bias.
- The sample size for Cohort 2 was small and a power analysis was not performed.
- Outpatient medication adherence and outpatient psychotherapy could not be accounted for, which may have affected the primary outcome.

CONCLUSION

Patients suffering from schizophrenia discharged with an antipsychotic medication showed a lower but non-significant number of future alcohol-related readmissions. A multivariate regression analysis to identify potential confounding factors should be performed moving forward. Further studies should also aim to expand upon the number of patients in Cohort 2 by extending the timeframe.

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