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Management of delirium at an academic medical center: Plans for antipsychotic prescribing upon discharge

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Abstract

Introduction: Delirium is an acute, fluctuating change in mental status, often associated with behavioral manifestations such as agitation. Literature suggests that many patients who continue on antipsychotics for extended management of delirium are not provided instructions for discontinuation. However, there is a positive correlation between consult services and instructions for discontinuation. The objective of this study was to determine the frequency at which patients with delirium were prescribed an antipsychotic at hospital discharge and to characterize discharge antipsychotic prescribing for psychiatric consult and nonconsult cohorts.

Methods: This study was a retrospective chart review of adult patients with an International Classification of Diseases 10th revision code of delirium who received at least 1 dose of antipsychotic during their admission. Inclusion criteria were all patients aged 18 years or older with a diagnosis of or relating to delirium who were administered antipsychotics during their admission.

Results: A total of 152 patients were included, of which 43 received a psychiatric consult. Antipsychotics were prescribed at discharge for management of delirium for 52 (34.2%) of 152 total patients. More patients in the psychiatric consult cohort were discharged with an antipsychotic as compared to those in the nonconsult cohort (53.3% vs 26.6%, $P = .02$).

Discussion: Compared to previous studies, patients in this retrospective review were more likely to be discharged on an antipsychotic that was initiated during admission for management of delirium. Findings from this study also align with prior research demonstrating a positive association between antipsychotic discharge instructions and specialty consult recommendations.

Keywords: antipsychotic, delirium, discharge

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Introduction

Delirium is an acute disturbance in mental status, often associated with inappropriate behavior such as agitation.[1] Behavioral manifestations of delirium can result in interruption of medical treatment. Delirium can also result in long-term consequences such as functional decline, new nursing home placement, and mortality.[2] Despite limited and conflicting evidence of efficacy for

antipsychotics in the acute management of delirium, these agents are often used when agitation interferes with clinical care or affects the safety of the patient or others.[1] Evidence does not exist to support the notion that treatment with antipsychotics reduces the negative consequences of delirium or alters the clinical course, while their use is associated with short-term and long-term adverse effects such as sedation, orthostatic hypotension, metabolic side effects, and increased mortality.[3] According to a recent meta-analysis by Ralph and Espinet, [4] the hazard ratio of mortality in elderly patients prescribed antipsychotics is high (1.9-2.19). Therefore, the risks of negative outcomes associated with antipsychotic use warrant continuous reassessment.[4]

Because of limited long-term evidence and the potential for detrimental side effects, duration of antipsychotics for treatment of delirium should be as conservative as possible. As such, transitions of care represent an opportunity to reduce indefinite antipsychotic continuation after an episode of delirium. A retrospective study conducted by Flurie et al[5] observed that of 87 patients initiated on antipsychotics while in the hospital, 23 continued on antipsychotic therapy after transfer from the medical intensive care unit to the medical unit. Of this subset, 9 were discharged on the antipsychotic. Similarly, Marshall et al[6] evaluated 39 248 intensive care unit admissions. Of those, 4469 were exposed to an antipsychotic. Of the exposures, 3119 were new initiations and 642 were continued on antipsychotics at hospital discharge. A prospective study by Tomichek et al[7] also found that a significant number of new antipsychotic initiations have therapy continued upon hospital discharge. Of 208 newly initiated patients, 172 survived to hospital discharge, and 42 were prescribed a discharge antipsychotic, only 7 of which had unresolved delirium documented upon discharge.[7] Likewise, Fontaine et al[8] reported that of 8297 patients without an identified psychiatric illness besides delirium, 334 were prescribed a discharge antipsychotic. Furthermore, Johnson et al[9] found that of 487 elderly medical and surgical patients initiated on a new antipsychotic, 147 were discharged on an antipsychotic, with delirium being the most common indication (n = 121). The majority of patients (n = 106) discharged on an antipsychotic for delirium did not receive instructions for discontinuation or further follow-up after discharge. However, authors[9] observed a positive association between discharge summaries containing instructions for discontinuation and receipt of specialty consult services (ie, psychiatry or geriatric medicine).

The present study sought to contribute to this growing body of literature by investigating the frequency of antipsychotic continuation at discharge following an episode of inpatient delirium and total daily dose prescribed for continued management of delirium. Additionally, we aimed to determine the frequency at which discharge instructions for continuation or discontinuation were documented in those patients who received a psychiatric consult.

Methods

This study was conducted at a 700-bed academic medical center across all inpatient areas, including critical care units, general medicine floors, and other locations. This was a retrospective chart review of adult patients with an International Classification of Diseases 10th revision code of delirium who received at least 1 dose of antipsychotic during their admission. An electronic report of inpatient antipsychotic administrations from July 1, 2017, to June 30, 2018 was generated. Antipsychotics of interest were selected based on literature for management of delirium and included aripiprazole, haloperidol, olanzapine, quetiapine, risperidone, and ziprasidone. Inclusion criteria were all patients aged 18 years or older with a diagnosis of delirium who were administered an antipsychotic during their admission. Patients were excluded if they were prescribed antipsychotics prior to admission, admitted to the inpatient psychiatric hospital, or hospitalized less than 24 hours. Types of delirium that were excluded included altered mental status due to hepatic encephalopathy, Wernicke encephalopathy, delirium tremens, and substance-induced delirium. Patients on the antipsychotic administration report were divided into those who received a psychiatric consult and those who did not. All patients in the psychiatric consult cohort were assessed for inclusion. The nonconsult cohort was limited to a pool of 150 patients, selected randomly, because of time constraint and limited study personnel to perform chart review.

Information gathered included demographic information, number of antipsychotic agents administered while inpatient, duration of antipsychotic treatment while inpatient, length of stay, and discharge setting. Discharge antipsychotic information was collected from the electronic medical record including antipsychotic name, total daily dose, and frequency of dosing (scheduled or as needed). For patients receiving a psychiatric consult, prescribing information (agent selection, dose, route, frequency, and instructions for continuation or discontinuation) in the discharge summary was reviewed for concordance with consult team recommendations.

The primary outcome of the study was to determine the frequency at which patients with delirium are prescribed an antipsychotic at discharge. Additionally, for patients in the psychiatric consult cohort, we determined the frequency at which instructions for use are documented in the last consult note. Secondary outcomes for both cohorts included characterization of antipsychotic pre-

TABLE 1: Baseline characteristics between the 2 groups

	Psychiatric Consult (n = 43)	Nonconsult (n = 109)	*P* Value
Male sex, n (%)	17 (39.5)	63 (57.8)	.04
Age, median (IQR), y	69 (56-79)	70 (56-78)	.81
Race, n (%)			.27
White	32 (74.4)	73 (67)	. . .
Black	11 (25.6)	30 (27.5)	. . .
Other	0 (0)	6 (5.5)	. . .

IQR = interquartile range.

scribing upon discharge, duration of inpatient antipsychotic administration, number of antipsychotic agents administered while admitted, and discharge status to any type of facility.

Statistical analysis was conducted using SPSS v22 (IBM Corp, Armonk, NY). Categorical data were reported as frequencies and percentages and continuous data as median and interquartile range. Fisher exact, χ^2, and Mann-Whitney *U* tests were used to compare outcomes between the psychiatric and nonpsychiatric consult cohorts. Descriptive statistics were used to summarize recommendations made by the psychiatric consult team, instructions for use in the discharge summary note, and discrepancies between the 2. The Institutional Review Board at the Medical University of South Carolina exempted this study for review.

Results

After exclusion criteria were applied to the 75 patients in the psychiatric consult cohort and 150 patients randomly selected for the nonconsult cohort, 152 total patients met inclusion criteria. Of the 152 total patients, 43 were included in the psychiatric consult cohort and 109 were included in the nonconsult cohort. Patients were excluded from the psychiatric consult cohort because of prior-to-admission antipsychotics (n = 17), death during hospitalization (n = 10), admission to the inpatient psychiatric hospital (n = 3), or consultation for mental illness other than delirium (n = 2). Patients were excluded from the nonconsult cohort because of prior-to-admission antipsychotics (n = 21) and death during hospitalization (n = 20). Baseline characteristics were similar between groups (Table 1).

Antipsychotics were prescribed at discharge for management of delirium for 52 (34.2%) of 152 total patients. More patients who received a psychiatric consult were discharged with an antipsychotic as compared to those without a consult (53.3% vs 26.6%, *P* = .02; Table 2). The majority of patients were prescribed scheduled antipsychotics, but 8 patients were prescribed both scheduled and as needed antipsychotics, while 1 patient was prescribed only as needed antipsychotics.

For patients in the psychiatric consult cohort, 35 patients had recommendations for antipsychotic use upon discharge documented in the last consult note. Of those, 18 patients had recommendations to continue the antipsychotic, while 17 patients had recommendations to discontinue the antipsychotic prior to discharge. Of the patients with recommendations to continue the antipsychotic, 13 were prescribed an antipsychotic by the primary team. Conversely, 7 patients with recommendations to discontinue the antipsychotic were prescribed an antipsychotic. Eight patients had no recommendations for antipsychotic use after discharge.

Fewer patients in the psychiatric consult cohort were discharged to any facility as opposed to those in the nonconsult cohort (30.2% vs 47.7%, *P* = .05), although

TABLE 2: Cohort outcomes between the 2 groups

	Psychiatric Consult (n = 43)	Nonconsult (n = 109)	*P* Value
Discharge antipsychotic, n (%)	23 (53.3)	29 (26.6)	.002
Quetiapine, median (IQR), mg/d	75 (25-100)	44 (25-63)	.33
Haloperidol, median (IQR), mg/d	2 (2-4.5)	1.5 (1.5-2.3)	.4
Olanzapine, median (IQR), mg/d	10 (5-15)	20 (15-20)	.26
Length of stay, median (IQR), d	16 (8-23)	13 (9-25)	.56
Days of inpatient antipsychotic therapy, median (IQR)	7 (2-13)	5 (1-12)	.17
No. of antipsychotic agents administered while inpatient, median (IQR)	2 (1-3)	1 (1-2)	.06
Discharge to facility,[a] n (%)	13 (30.2)	52 (47.7)	.05

IQR = interquartile range.

[a]Discharge to a long-term care facility, skilled nursing facility, rehabilitation facility, or other health care institution.

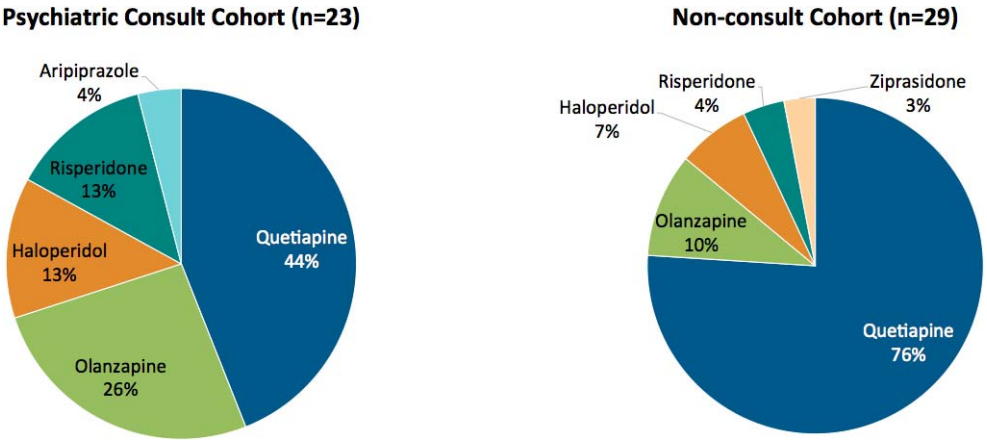

FIGURE: Antipsychotic agent prescribed at discharge

clinical significance of this finding is uncertain. There were no statistically significant differences in the type of antipsychotic agent prescribed at discharge, total daily dose prescribed, days of inpatient antipsychotic therapy, number of antipsychotic agents administered while inpatient, or length of stay (Table 2). Quetiapine was the most frequently prescribed antipsychotic at discharge for both groups (Figure).

Discussion

Compared to previous studies,[5,9] patients included in this retrospective review were more likely to be discharged on an antipsychotic that was initiated during admission for management of delirium. Approximately one third of patients in this study were discharged on an antipsychotic. Other findings from this study align with prior research[9] in that there was a positive association between antipsychotic discharge instructions for continuation or discontinuation and specialty consult recommendations.

Quetiapine was the most commonly prescribed discharge antipsychotic for both cohorts. This may have been due to prescriber preference, consult recommendations, or pharmacologic properties such as sedating effects to target sleep disturbance. These findings are in contrast to previous studies[5,10] where haloperidol was the most frequently used antipsychotic for management of delirium. There was greater variability of agents prescribed for patients in the psychiatric consult group. Variability in prescribing may have been related to the time at which the psychiatric team was consulted, as the team may not have evaluated the patient until further in the course of delirium when other agents might have been exhausted. Rate of antipsychotic prescribing was also negatively affected by suboptimal adoption of consult recommendations by the primary team.

There is no established antipsychotic dosing for management of severe agitation or psychosis secondary to delirium. According to society guidelines, antipsychotics should be prescribed for the lowest effective dose possible.[2,11,12] To our knowledge, this is the first study to examine total daily doses of antipsychotics prescribed at discharge for extended management of delirium. In our study, total daily doses of haloperidol and quetiapine remained low for both psychiatric consult and nonconsult cohorts. However, olanzapine dosing in each group was within range for target dosing of schizophrenia and bipolar disorder. This could present a challenge for next level of care providers, as they may see the dose and perceive the antipsychotic to be for a chronic mental illness. Therefore, the antipsychotic has the potential to be continued indefinitely when it was only intended for a short period. Total daily doses of aripiprazole, risperidone, and ziprasidone were not analyzed because of small sample sizes.

Limitations of this chart review design include retrospective nature, single-center study site, and small sample size. Because of the small sample size, patients in the psychiatric consult cohort were unable to be randomly selected. Thus, random selection only occurred for the nonconsult cohort. The single-center nature of the study design also limits the external validity to influence practice change. Therefore, this study may not be generalizable to other institutions. Furthermore, study investigators were unable to control for baseline illness severity and the possibility of selection bias. For example, the psychiatric consult service may have received consults for patients with difficult-to-manage symptoms that require a more aggressive treatment course. Additionally, patients were selected for inclusion based on the absence of an antipsychotic on the prior to admission medication list. In this way, investigators attempted to exclude patients with an indication for continued antipsychotic use. However, prior to admission medication lists were not always accurate. Anecdotally, the psychiatric consult service often uncovers new diagnoses,

such as neurocognitive disorders or preexisting psychiatric illnesses, that may require continued use of an antipsychotic at discharge. It is unknown if the increased number of discharge antipsychotics in the psychiatric consult cohort was related to increased illness severity or other compelling indications for continued antipsychotic treatment. Of note, the psychiatric consult team does not prescribe medications. All recommendations are relayed to the primary service teams, who have the option of accepting recommendations. Investigators were unable to compare discharge antipsychotic instructions between the psychiatric consult and nonconsult cohorts because of time restraint, but this may represent an area for further inquiry. Moreover, this study may not have captured all patients with a diagnosis of delirium. According to literature,[13] fewer than 3% of delirium cases are coded in the medical record.

Upon discharge, the electronic medical record requires that providers reconcile medications to be prescribed, resumed, or discontinued. Pharmacists are not consistently involved in discharge medication reconciliation across the health care system. The high number of discharge antipsychotics may have been related to user error or inaccurate knowledge of the discharge medication reconciliation process. Scheduled antipsychotics were prescribed more often than as needed antipsychotics and may be more likely to be continued inadvertently since as needed medications are often discontinued at time of discharge.

This single-center, retrospective chart review of antipsychotic prescribing at discharge for management of delirium revealed that 34.2% of patients at a large academic medical center were prescribed discharge antipsychotics. The teams requesting consultation for patients in the psychiatric consult cohort did not consistently follow consult recommendations for antipsychotic plans at discharge. Seven (41%) out of 17 patients were discharged on an antipsychotic, despite consult recommendations to discontinue prior to discharge. When discharge instructions were discrepant with consult team recommendations, there was not a documented explanation for the discrepancy. This study demonstrated that opportunities exist to educate pharmacists and providers on medication reconciliation and transition of care instructions, specifically for antipsychotic continuation or discontinuation at discharge.

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