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Antipsychotic factors related to time to competency for forensic inpatients in a state psychiatric facility

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Abstract

Introduction: A defendant who is deemed incompetent to stand trial may go through competency restoration consisting of mental health treatment and legal education. Antipsychotics are often used in treatment; however, there is little data examining their role.

Methods: This retrospective study included subjects opined competent to stand trial from July 2016 to February 2020 and prescribed an antipsychotic. The primary outcome was difference in time to competency between antipsychotics. Secondary outcomes included difference in time to competency between groups of antipsychotics, difference in length of stay after opined competent based on medication availability in jail, individual antipsychotics, and formulations.

Results: There were 117 subjects included for analysis. There were no differences in time to competency between individual antipsychotics, first- and second-generation antipsychotics, or formulations. Length of stay after opined competent was significantly longer for subjects who were prescribed a long-acting injectable antipsychotic (103 days vs 56 days), who were not able to receive their antipsychotic in jail (104 days vs 54 days), or who were prescribed any formulation of paliperidone compared with olanzapine (88 days vs 35 days).

Discussion: Since there were no differences in time to competency, patient-specific factors should be used to choose an agent for competency restoration. Length of stay differences are likely related to the antipsychotic access differences between jails and state psychiatric facilities. Therefore, policies related to antipsychotic access should better align between state psychiatric facilities and jails to improve the capacity of the system and provide better care.

Keywords: antipsychotics, bipolar disorder, schizophrenia, competency, forensic psychiatry, jail

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Introduction

The 1960 court case *Dusky v United States* mandates that a defendant must have the ability to consult with their lawyer and have a factual and rational understanding of the legal proceedings in order to be competent to stand trial (CST).[1,2] If the defendant is determined to be incompetent to stand trial (IST), they may go through competency restoration consisting of mental health treatment in their state as well as legal proceedings education to allow them to return to trial as CST.[1] Once competency is restored and the appropriate evaluation and court confirmation is completed, the patient will await court proceedings. Factors that have been found to predict the receipt of an IST status include treatment of a psychotic disorder, active psychosis symptoms, poor psycholegal comprehension, and poor functional abilities.[3] Psycholegal comprehension refers to a defendant's ability to understand information relevant to their charges (including consequences), the ability to use logical thinking and reasoning, and being able to effectively formulate and communicate decisions.[4] The factors associated with failure of IST defendants to regain competency are impairment in psycholegal ability, severe psychotic symptoms, a long history of a psychotic disorder with lengthy hospitalizations, and borderline intellectual functioning.[1,3,4] Defendants who were less likely to regain competency had been prescribed a higher quantity of medications and had spent more time unmedicated before receiving treatment.[3] When patients undergo competency restoration, there is little coordination of care between the treating facility and the jail system outside of admission and discharge transitions of care. The jail's formulary can be considered for initial medication choices, but if those options fail or are not appropriate based on patient-specific characteristics, the patient is treated with a nonformulary medication. Each jail generally has its own formulary, so if the patient is restored to competency with a nonformulary medication, the defendant may remain inpatient until their court date instead of returning to jail.

Although medications play an important role in competency restoration, there is very little data in this area. To our knowledge, only 3 studies[5-7] examined how medications affect outcomes in a forensic patient population. The first study,[5] published in 2002, evaluated differences in patients treated with clozapine or haloperidol who were ordered not guilty by reason of mental illness (65%) or IST (35%). They found that patients treated with clozapine were more likely to stay on conditional release longer and that the majority of patients switched from haloperidol to clozapine had improvements in their Global Assessment of Functioning score. A retrospective study,[6] published in 2019, found no difference between long-acting injectable (LAI) and oral antipsychotics for competency restoration. A third study[7] from 2020 focused on clozapine and found that time to competency was significantly longer for those treated with clozapine and that subjects on clozapine were more likely to be ordered permanently incompetent to stand trial. The conflicting data between the clozapine studies are likely related to differences in patient populations. None of the mentioned studies compared all antipsychotics prescribed for competency, and all were focused comparisons of 1 or 2 antipsychotics or formulations of antipsychotics. These studies did not address how antipsychotics impact the system as a whole.

The primary objective of this study was to compare antipsychotics in time to competency restoration to begin to address the gap in knowledge regarding medications for competency restoration. A secondary objective was to compare length of stay between antipsychotics in subjects who were able to receive their antipsychotic in jail compared with those who were not. By looking at this, it would evaluate medication impacts on the competency restoration system.

Methods

A single-center, retrospective review was conducted at Center for Behavioral Medicine (CBM) in Kansas City, Missouri, from July 2016 to February 2020. CBM is a state psychiatric facility for Missouri that has 2 adult units for competency restoration, and there is no set time frame for which competency must be achieved. Subjects who were admitted as IST and discharged as CST on an antipsychotic for any indication within the study period were included. This time frame was chosen to maintain consistency with structured education for patient competency restoration across the study period and to remove education differences as a potential confounder. Subjects were excluded if they were not discharged on an antipsychotic, had not been evaluated for competency within the study time frame, or were opined/ordered permanently incompetent to stand trial. If a subject was admitted more than once during the study time frame, only their initial visit was included. A chart review was conducted after the subject was discharged to collect data related to baseline characteristics, and primary and secondary outcomes. Study data were collected and managed using REDCap electronic data capture tools hosted at University of Missouri–Kansas City.[8,9] REDCap is

TABLE 1: Baseline characteristics of the study group (N = 117)

Parameter	Value
Age, y, mean (range)	35 (19-61)
Male, n (%)	86 (74)
Race, n (%)	
White	84 (72)
African American	21 (18)
Other	12 (10)
Felony, n (%)	102 (87)
Diagnosis, n (%)	
Schizophrenia	61 (52)
Bipolar disorder	22 (19)
Schizoaffective disorder	14 (12)
Other	20 (17)
Prescribed antipsychotic in jail prior to admission, n (%)	38 (33)
Antipsychotic prescribed in jail prior to admission, n (%)	
Risperidone	13 (34)
Haloperidol	9 (24)
Olanzapine	8 (21)
Other antipsychotic	8 (21)
Formulation of antipsychotic prescribed in jail, n (%)	
Oral	36 (95)
Long-acting injectable	2 (5)
Time to initiation of antipsychotic after admission in days, mean ± SD	3.7 ± 12
Length of trials that did not restore to competency in days, mean ± SD	49.8 ± 49.5
Total length of stay in days, mean ± SD	182 ± 100

a secure, web-based software platform designed to support data capture for research studies.

The primary outcome was difference in time to competency between antipsychotics regardless of their formulation (oral, LAI, oral disintegrating tablets). Secondary outcomes included difference in time to competency between first-generation (FGA) and second-generation antipsychotics (SGA), LAI and oral (tablets, capsules, and oral disintegrating tablets) antipsychotics, and low-, medium-, and high-dose antipsychotics (≤400 mg/d, 401-800 mg/d, and >800 mg/d of chlorpromazine equivalents, respectively).[10] Other secondary outcomes were differences in readmission rate at 30, 60, and 90 days, differences in average length of stay in the state psychiatric hospital after opined competent between individual antipsychotics, oral and LAI antipsychotics, and for subjects who had access to their medication in jail after discharge compared with those who did not.

Descriptive statistics were used to analyze baseline characteristics. Welch ANOVA and Welch *t* test were used to compare continuous variables with unequal group sizes, as appropriate. Kruskal-Wallis test was used for tests that did not meet the assumptions of ANOVA. This study was reviewed and approved by the University of Missouri–Kansas City's IRB and research committees for the Missouri Department of Mental Health and CBM.

Results

There were 249 subjects screened utilizing the medical record, and 117 were included. The 2 most common reasons for exclusion were not discharged CST within the study time frame and not discharged on an antipsychotic. Baseline characteristics are described in Table 1. Most subjects were male, white, with an average age of 35 years; most were charged with a felony and had a diagnosis of schizophrenia. On admission, 33% of subjects were prescribed an antipsychotic in jail. On average, antipsychotics were prescribed 4 days after admission, and subjects were continued on their antipsychotic for 49 days prior to switching to a different antipsychotic.

For the primary outcome, there were no significant differences in time to competency between the individual antipsychotics regardless of formulation ($P = .15$), as depicted in Figure 1. The result remained nonsignificant when only oral formulations were compared ($P = .26$). There were additional subjects who were restored to competency with chlorpromazine (n = 1), clozapine (n = 2), loxapine (n = 2), and quetiapine (n = 2), but because of the small group sizes, they were excluded from the ANOVA. Secondary outcomes for difference in average time to competency between different groups of antipsychotics are described in Table 2. There was no difference in average time to competency between oral and LAI antipsychotics or FGA and SGA. Only 3 subjects were restored to competency with high-dose antipsychotics, so they were grouped in the medium-dose group as a medium/high-dose group. Those prescribed low doses of antipsychotics were restored to competency significantly faster than those receiving medium/high doses of antipsychotics (67 days vs 97 days, $P < .01$).

Defendants prescribed olanzapine had a significantly shorter length of stay after opined competent than those prescribed paliperidone (35 days vs 88 days, $P < .01$), as depicted in Figure 2. This difference remained when comparing only the oral formulations of these medications (35 days vs 68 days, $P = .037$). Out of 17 patients who were prescribed olanzapine, 16 (94%) were able to receive their medication in jail. Of the 26 patients in the paliperidone group, availability of medication in jail could not be determined for 2 patients. For the remaining 24 patients,

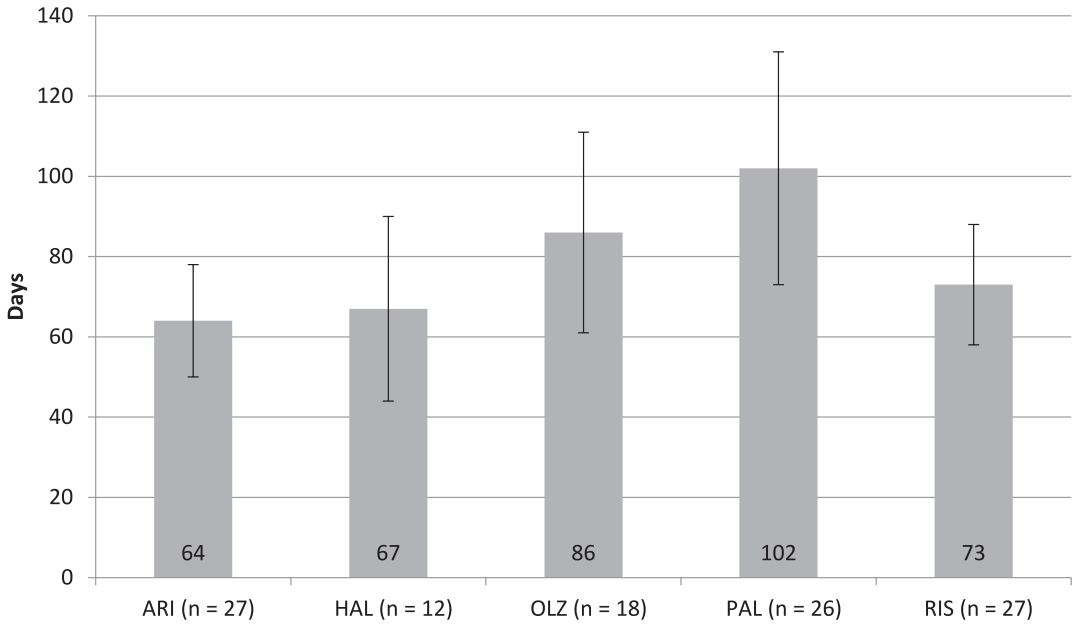

FIGURE 1: Average time to competency between antipsychotics (ARI = aripiprazole; HAL = haloperidol; OLZ = olanzapine; PAL = paliperidone; RIS = risperidone); all comparisons were not significant; 7 subjects were not included in analysis owing to low group sizes for their antipsychotic: chlorpromazine (n = 1), clozapine (n = 2), loxapine (n = 2), and quetiapine (n = 2)

15 (63%) were able to receive their medication in jail: oral, 10/12 (83%); LAI, 5/12 (42%). As described in Table 2, the average length of stay after competency was significantly longer for LAI compared with oral antipsychotics (103 days vs 56 days, $P = .013$), and subjects stayed in the hospital significantly longer after competency if they could not receive their medication in jail compared with when they could (104 days vs 54 days, $P < .01$). There were 4 subjects who were released on bond, so whether they were able to receive their medication in jail or not was not applicable, and they were not included in the secondary analysis. No patients were readmitted within 90 days.

Discussion

The primary and secondary outcomes showed no difference in time to competency when comparing individual antipsychotics, FGA and SGA, or oral and LAI. This is not surprising based on the CATIE trial and guideline recommendations to choose an antipsychotic based on patient-specific factors and that generally one is not more efficacious than another except clozapine.[11,12] Additionally, the 2019 study[6] that compared LAI and oral antipsychotics found no statistical difference between the 2 formulations in their ability to restore IST subjects to competency. Subjects opined competent on low doses of antipsychotics were restored significantly quicker than subjects on medium/high doses. A potential explanation is that patients with a lower severity of illness, and thus requiring lower doses of antipsychotics, restored to competency quicker. Additionally, all doses of aripiprazole fall into the low-dose group based on chlorpromazine equivalents, likely due to the unique mechanism of partial D2 agonism, which could have skewed the low-dose group as it had the shortest time to competency.[10,13-15]

TABLE 2: Secondary outcomes of the current study

Groups (n)	Average Time to Competency, d	Average Length of Stay After Competent, d
FGA (15) vs SGA (102)	63 vs 82	
Low dose (69) vs medium/high dose (48)[a]	67 vs 97[b]	
Oral (98) vs LAI (19)	75 vs 103	56 vs 103[b]
Medication access (90) vs no medication access (23) in jail		54 vs 104[b]

FGA = first-generation antipsychotic; LAI = long-acting injectable; SGA = second-generation antipsychotic.

[a]Low dose = ≤400 mg/d of chlorpromazine equivalents; medium dose = 401-800 mg/d of chlorpromazine equivalents; high dose = >800 mg/d of chlorpromazine equivalents.

[b]$P < .01$.

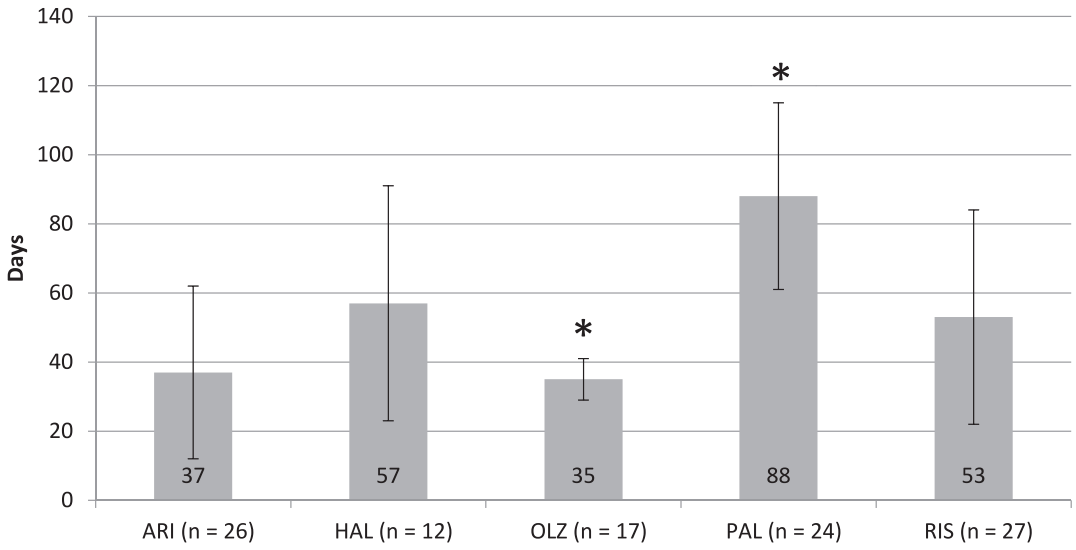

FIGURE 2: Average length of stay after competency restoration (ARI = aripiprazole; HAL = haloperidol; OLZ = olanzapine; PAL = paliperidone; RIS = risperidone; * *P* < .01)

Subjects who were treated with LAI antipsychotics and those who were not able to receive their antipsychotic in jail stayed in the hospital significantly longer after they were opined CST. Jails frequently have limited ability to administer LAI antipsychotics, because of limited nursing staff and lack of funds or transportation for subjects to receive their medication, which is likely why patients remained in the hospital longer. Although they contributed to an increased length of stay, LAI antipsychotics generally have benefits in terms of increasing adherence rates, reducing relapse rates, and maintaining stable serum concentrations.[16] An LAI should still be considered for competency restoration if the patient could benefit from it.

If subjects were not able to receive their antipsychotic in jail, their length of stay was 2 times longer. Reasons for not having access to antipsychotics in jail include previously mentioned barriers to LAI antipsychotics in addition to cost, potential for abuse (such as quetiapine), and inability to perform required monitoring (such as ANC monitoring for clozapine). The inability to accommodate medications after discharge can be detrimental to the whole forensic system, as CST patients who do not have access to their medication in jail utilize inpatient resources including medication and education that could be used to treat other IST patients. Wait time for IST patients has been noted to be a significant issue in the competency restoration system,[17] which could be in part a result of stable patients remaining hospitalized due to lack of medication access in jail.

This study found that most subjects were not receiving antipsychotics on admission, leaving the majority of IST patients in jail untreated for their psychiatric condition. This is concerning as it puts the patient at increased risk for poorer response to treatment, increased symptoms, and poorer prognosis.[18-20]

The significant difference in length of stay after competency between olanzapine and paliperidone was the only significant difference found between individual antipsychotics. This difference remained when only oral formulations of these antipsychotics were compared. The mean length of stay after competency for oral paliperidone was nearly twice as long as for oral olanzapine (68 days vs 35 days). The reason for this is unclear.

The findings of this study illustrate some of the deficits related to medication access in the competency restoration system, which have not been addressed in other studies, to our knowledge. Strengths of this study are that there is little data in this area of research, it adds to the available data on the challenges of medication use in restoration of competency, and the study period had consistent education for IST restoration. Limitations of this study were the small sample size, the single-center retrospective design, lack of inclusion of newer antipsychotics, lack of evaluation of other medication use, unverified time in jail prior to admission, and limited subject diversity. The hospitalization data were limited to the state database and admitting documentation, which means readmissions not included in this system would have been missed. Future studies should further characterize the system issues related to medication use in the forensic system and evaluate how medication issues relate to wait times in the competency restoration system in other facilities or states.

Conclusion

Patient-specific factors should be used when determining which antipsychotic to use for competency restoration, as there is not a specific antipsychotic that is superior to others in restoring competency. The findings of this study illustrate that policies related to medication access for patients undergoing competency restoration should better align between state psychiatric facilities and jails to improve the capacity of the system and provide better care.

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