Race and Long-Acting Antipsychotic Prescription at a Community Mental Health Center: A Retrospective Chart Review

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ABSTRACT

Objective: There has been concern that racial minorities are disproportionately prescribed long-acting injectable antipsychotic drugs.

Method: Comprehensive administrative data and clinician survey were used to identify all patients with a *DSM-IV* diagnosis of schizophrenia who received long-acting antipsychotic prescriptions from July 2009 to June 2010 at a community mental health center. Charts were reviewed retrospectively to validate long-acting antipsychotic prescription (eg, medication, dosage) and merged with administrative data from all center patients documenting sociodemographic characteristics (ie, age, race, gender) and comorbid diagnoses. We used bivariate χ^2, *t* tests, and multivariate logistic regression to compare the subsample of patients receiving long-acting injectable drugs (n = 102) to patients not receiving long-acting injectable drugs (n = 799) who were diagnosed with schizophrenia for the same period.

Results: White patients were significantly less likely to receive long-acting antipsychotic prescriptions than minority patients (OR = 0.52, $P < .007$); ie, nonwhites were 1.89 times more likely to receive such drugs. Age, gender, and comorbid diagnoses, including substance abuse, were unrelated to long-acting injectable prescription, and race/ethnicity was not associated with use of specific agents (haloperidol decanoate, fluphenazine decanoate, or risperidone microspheres) ($P = .73$).

Conclusions: Racial minorities are more likely than other patients with schizophrenia to receive long-acting injectionable antipsychotics, a finding that suggests their prescribers may consider them less adherent to antipsychotic prescriptions.

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Concern has been growing about racial disparities in the delivery of health care[1] and in mental health care in particular.[2] In 1999, the Surgeon General reported that "even more than other areas of health and medicine, the mental health field is plagued by disparities in the availability of and access to its services. These disparities are viewed readily through the lenses of racial and cultural diversity, age, and gender."[2(p vi)] Some disparities represent decreased use of effective services, while others may result from services with potentially adverse implications, such as excessive hospitalization,[3] or treatments representing social control, such as emergency commitment.[4]

One controversial disparity is use of long-acting injectable antipsychotics in the treatment of minorities with schizophrenia. In a 1985 article that initiated research on racial disparities in long-acting injectable prescription, Price et al[5] found that African Americans were more likely to receive long-acting injectables than whites (OR = 2.2, $P < .001$), African Americans younger than 45 years were more likely to receive long-acting injectables than white peers (OR = 1.5, $P = .04$), and African Americans older than 45 years were more likely receive long-acting injectables than white peers (OR = 5.0, $P = .04$). More specifically, African Americans have also been found to receive long-acting injectables more often than whites in inpatient settings (OR = 2.6, $P < .02$),[6] in community mental health centers (OR ~ 1.5, $P < .01$),[7] among multistate outpatient service providers (OR = 2.91, $P < .0001$),[8] and within a large prospective cohort of patients specifically treated for schizophrenia spectrum disorders (OR = 1.53, $P < .007$).[9] White patients have also been found to receive fewer long-acting injectable prescriptions than nonwhites in outpatient settings (OR = 0.47, $P < .005$).[10]

More recent studies, however, have challenged the notion that race is associated with long-acting injectable prescription. For example, a 2008 study[11] found that patient race did not predict long-acting injectable prescription and that nonwhite psychiatrists initiated long-acting injectables more than white psychiatrists (OR = 2.11, $P = .002$). Studies from the United States[12] and the United Kingdom[13] have also failed to find associations with minority race and long-acting injectable prescription.

This study seeks to update research on race and long-acting injectable prescription in 3 ways. First, it reexamines the relationship between race and long-acting injectable use at the same community mental health center in which this issue was first studied in 1985.[5] Second, while many earlier studies examined only first-generation long-acting injectable medications, this study reports data from 2010, 7 years after risperidone microspheres was approved by the US Food and Drug Administration. This study may thus elucidate whether practice patterns have changed with the introduction of the first second-generation long-acting injectable antipsychotic. Finally, previous studies characterize race in dichotomous terms as black and white. Considering that the 2010 US Census shows that Hispanics and Latinos comprise the second largest ethnic group after whites,[14] our study differentiates them from other minorities. We thus hope to examine

Clinical Points

- Ethnic minorities may disproportionately receive long-acting injection antipsychotics for treatment nonadherence.
- Clinicians can improve adherence by considering effective psychotherapy modalities (individual, family, group) and oral antipsychotic regimens at optimal doses before prescribing long-acting injectables.
- Clinicians should also screen for comorbid substance use, depression, or medication side effects in all patients to identify those at risk for nonadherence.

changes in the use of long-acting injectable treatment for minorities over a 25-year period.

METHOD

Sample

A list of all patients receiving services from the Connecticut Mental Health Center (CMHC) from July 1, 2009, to June 30, 2010, was obtained from center administrative records, and those carrying an intake *DSM-IV* diagnosis of schizophrenia or schizoaffective disorder were identified. The CMHC is collaboratively administered by the Yale University Department of Psychiatry and the Connecticut Department of Mental Health and Addiction Services and provides mental health services to the indigent and uninsured in the greater New Haven area. This study was approved by the institutional review boards of the CMHC and the Yale University School of Medicine.

Measures

Since the administrative records of the CMHC did not include prescription information, subjects receiving long-acting injectables were identified in several ways. The CMHC provides services according to team, historically based around disorders (mood, anxiety and personality, psychosis), social services (housing), acuity (triage), and language (Hispanic Clinic). All team leaders were approached and all clinicians were asked to identify patients on their caseload who were being prescribed long-acting injectables in 2010. Next, the CMHC pharmacy was asked to provide a list of all patients receiving long-acting injectables, and nursing orders for each team were reviewed for long-acting injectable injection orders from outside pharmacies. This was done to counter gaps in clinician recall and to incorporate all patients on long-acting injectables with diagnoses other than schizophrenia and schizoaffective disorder. A master list of all patients identified as using long-acting injectable antipsychotics was compiled, and all medical records were reviewed to validate these indications.

Data were abstracted using a form (available on request) that recorded current long-acting injectable antipsychotic, all oral psychotropic medications, and all previous and current oral antipsychotic trials. All diagnoses were recorded from either the initial admission workup or the mandatory semiannual treatment review, whichever was most recent.

Analysis

Patients diagnosed with schizophrenia or schizoaffective disorder and prescribed long-acting injectables in the previous year were compared to those who were not prescribed long-acting injectables on age by using *t* tests and, on gender, race/ethnicity, and comorbid diagnoses, by using χ^2 tests. Forward stepwise logistic regression testing the variables of age, white race, black race, Hispanic race, other race, alcohol disorder, other drug disorder, bipolar disorder, major depressive disorder, posttraumatic stress disorder, anxiety disorder, and other disorder was then used to identify factors that were associated with long-acting injectable prescription independent of other significant factors. A χ^2 test was used to evaluate racial differences in the use of specific agents (haloperidol decanoate, fluphenazine decanoate, or risperidone microspheres).

RESULTS

The total CMHC caseload from July 1, 2009, to June 30, 2010, was 2,770 patients. The total number of patients on long-acting injectables was 124 patients. Of this group, 102 patients (81.5%) received a diagnosis of schizophrenia or schizoaffective disorder. Other diagnoses included bipolar I disorder, most recent episode manic (4%); psychosis not otherwise specified (NOS) (4%); major depressive disorder (1.6%); mood disorder NOS (0.8%); and bipolar I disorder, most recent episode depressed (0.8%). We could not find diagnostic information for the remaining 7.3% of the patients who had proceeded beyond intake but whose clinicians had not completed the most recent semiannual review. We restrict our analyses to the patients diagnosed with schizophrenia or schizoaffective disorder given the small samples of other diagnoses.

Of 901 patients diagnosed with schizophrenia or schizoaffective disorder at CMHC during our study interval, 102 (11.2%) were prescribed long-acting injectable antipsychotics. Only 12 of these 102 patients (11.8%) received their prescriptions from the CMHC.

Whites and patients diagnosed with comorbid dementia or anxiety disorder were significantly less likely to be prescribed long-acting injectable antipsychotics, while African Americans were more likely to be prescribed such drugs (Table 1). There were no differences on age, gender, or any other diagnostic category, including drug or alcohol abuse. When using logistic regression, only white race was significantly related to long-acting injectable use (OR = 0.52; $P < .007$; 95% CI, 0.33–8.3). Put differently, minorities were 89% more likely to be prescribed long-acting injectable medication (OR = 1.89; 95% CI, 1.21–2.98). Race/ethnicity was not associated with use of specific agents (haloperidol

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Table 1. Characteristics of Patients With a Diagnosis of Schizophrenia or Schizoaffective Disorder at the Time of Analysis, by Long-Acting Injectable Status From July 2009 to June 2010

	Long-Acting Injectable (n = 102)		No Long-Acting Injectable (n = 799)		All (N = 901)				
Characteristic	n	%	n	%	n	%	χ^2/t	*df*	*P*
Age, y	45.6[a]	11.2[b]	45.8[a]	12.9[b]	45.8[a]	12.7[b]	0.16	899	.87
Male gender	65	63.73	488	61.08	553	61.38	0.27	1	.60
Race									
White	26	25.49	316	39.55	342	37.96	7.59	1	.01
Black	54	52.94	330	41.30	384	42.62	5.01	1	.03
Hispanic	21	20.59	140	17.52	161	17.87	0.58	1	.45
Other	1	0.98	13	1.63	14	1.55	0.25	1	.62
Comorbid *DSM* diagnosis									
Dementia	1	0.98	0	0.00	1	0.11		1	
Bipolar disorder	3	2.94	0	0.00	3	0.33	0.38	1	.54
Major depressive disorder	1	0.98	10	1.25	11	1.22	0.06	1	.81
PTSD	3	2.94	24	3.00	27	3.00	0.00	1	.97
Any alcohol abuse code	11	10.78	104	13.02	115	12.76	0.40	1	.52
Any drug abuse code	28	27.45	158	19.77	186	20.64	3.25	1	.07
Any anxiety code	0	0.00	29	3.63	29	3.22	3.83	1	.05
Other psychiatric diagnosis	1	0.98	8	1.00	9	1.00	0.25	1	.62

[a]Value shown is mean. [b]Value shown is SD.
Abbreviation: PTSD = posttraumatic stress disorder.

decanoate, fluphenazine decanoate, or risperidone microspheres) among long-acting injectable users ($\chi^2_6 = 3.59$, $P = .73$). However, we report elsewhere[15] that, when controlling for other significant variables, Hispanics were more likely to receive concomitant orals in both bivariate and multivariate analysis.

DISCUSSION

Among all patients at the CMHC diagnosed with schizophrenia or schizoaffective disorder, those prescribed long-acting injectables were compared with those who were not. We found that nonwhite race was the sole, independently significant variable associated with long-acting injectable prescription. Our odds ratio of 1.89 is slightly lower than 2.2 in the original study by Price et al[5] at this institution but essentially unchanged after 25 years. Our sample showed no independent effect for age, gender, or diagnosis on multivariable logistic regression analysis. When compared to other community mental health centers with odds ratios of 1.5,[7] our odds ratio is slightly higher. The CMHC's population of urban patients with serious mental illness and without health insurance may explain the significant association between race and long-acting injectable selection.

However, compared to Price et al,[5] whose study showed that 80 of 397 patients (20.2%) on maintenance antipsychotic medications were receiving long-acting injectables, our study showed that 102 of 901 patients (11.2%) diagnosed with schizophrenia or schizoaffective disorder received long-acting injectables. Sampling strategies may account for this difference. Price et al[5] enrolled only those patients receiving outpatient maintenance medications. Although they do not define *maintenance* with an exact time interval, there may be a higher use of long-acting injectables in this group if previous regimens toward stability did not succeed. On the contrary, we included all patients on long-acting injectables from all CMHC services, including those in acute and inpatient settings. In addition, Price et al[5] compared long-acting injectable use as a proportion of all patients receiving antipsychotic medications, whereas we compared long-acting injectable use among all patients, and specifically those with a diagnosis of schizophrenia or schizoaffective disorder. Since there is no equivalence between these groups, the proportion of patients on a long-acting injectable would be expected to change.

Furthermore, Price et al[5] found significant main effects for age, gender, and race and found in an interaction analysis that age effects were only significant among whites, with less long-acting injectable use among older whites but not among older blacks. These differences were not obtained in this study. We cannot explain this shift away from age and gender, even though race still played a significant role in the selection of patients for long-acting injectables. This finding may be attributed to differences in the sampling strategies as noted above.

Our study has several limitations. First, we used administrative data from the CMHC that categorizes race according to monolithic categories such as "White," "African American," "Asian," and "Native American/Pacific Islander." Hispanics and Latinos are classified with multiracial patients. However, we believe that our findings still remain valuable given that race remains a significant variable for long-acting injectable use despite important demographic shifts over the past 30 years. Second, race information in our administrative database was collected by assigned clinicians, and discussions with CMHC clinicians reveal wide variation in how race is recorded: some clinicians assign a race to the patient based on phenotype (a patient looks "White" or "African American"), whereas others ask patients how they identify themselves. This may affect results, particularly if

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clinician and patient reports do not match. Nevertheless, we are not aware of a standardized way of reporting racial data in the psychiatric literature, and this absence suggests a need for methodological consensus in this area. Third, patients were diagnosed clinically, not through structured instruments used in clinical research. Objections could be raised that our data do not allow for finer analyses based on disorder severity and that we did not conduct pretrial diagnostic assessments to test the proficiency of the clinicians, the diagnoses, and racial determinations used by clinicians, factors most relevant to this kind of clinical epidemiologic study. However, these indicators accurately reflect the beliefs and diagnoses used by clinicians in real-world practice and are especially relevant to a community setting, which is the focus of this study. Finally, we collected information based on snowball sampling, ie, team leaders identified clinicians with patients on long-acting injectable. While we validated all reports and all nursing orders against clinical records, patient charts may introduce data errors if some prescriptions were not recorded.

This study suggests the need for further research on the relationship between race and long-acting injectable prescription. In a commentary[16] on Shi and colleagues' study,[10] Glazer observed that depot medications are typically prescribed to uninsured patients from racial and ethnic minority groups or to those with criminal histories. These groups have been typically disenfranchised in the United States, suggesting that psychiatrists may need to devise better solutions for treatment adherence among minority patients. Recent guidelines have called for increased use of long-acting injectables in cases of nonadherence to oral antipsychotics.[17] Although current data on adherence or nonadherence of racial/ethnic groups at CMHC are not available, previous data from our institution show that monolingual Hispanics (mostly Puerto Ricans) and African Americans have lower rates of medication adherence than whites.[18] Nonwhites[19] and blacks[20] in particular have been found to have lower rates of treatment adherence in schizophrenia. Indeed, unemployment[21] and low educational level,[22] especially since education correlates with insight,[23] have been identified as correlates for treatment nonadherence in schizophrenia. Thus, perceived nonadherence may explain a part of the racial disparity we observed. Racial and ethnic minorities with lower unemployment and education levels may be perceived as at higher risk for nonadherence and in need of long-acting injectable prescription. Mental health professionals and their patients would therefore benefit from developing specific methods to encourage adherence in minorities through strategies such as psychoeducation or case management.

However, if treatment nonadherence were the only factor in prescriber selection of long-acting injectables, the overall rate of depot medication prescription might be expected to be higher, regardless of race. Other factors beyond perceived nonadherence may contribute to the racial disparity we observed. African Americans have consistently received lower doses of clozapine[24] and higher doses of long-acting injectables[25] for reasons unexplained by symptom severity. We do not insinuate that long-acting injectables should be avoided in all circumstances for ethnic minorities when adherence is an issue. In fact, it can be argued that long-acting injectables were appropriate, and perhaps preferred, in some cases. Instead, on the basis of this varied, and at times contradictory, literature, we would recommend that clinicians optimize clinical engagement by considering effective psychotherapy modalities (individual, family, group) and oral antipsychotic regimens at effective doses before prescribing long-acting injectables. Our study suggests the need for several additional avenues for research, such as the decision making of prescribers around long-acting injectable, patient satisfaction with long-acting injectable prescription, and the extent to which prescribers and patients view long-acting injectable as a temporary or permanent treatment. Such studies may help to comprehend and potentially correct racial disparities for all patients with psychotic disorders.

In the meantime, it is worthwhile to consider potential processes for quality improvement. Studies beyond community mental health centers have identified risk factors other than race for antipsychotic nonadherence, such as prior nonadherence, recent illicit drug or alcohol use, prior treatment with antidepressants, and patient-reported, medication-related cognitive impairment.[26] Clinicians could screen for comorbid substance use, depression, or medication side effects in all patients to identify those who might benefit from interventions promoting adherence. Clinicians could also simultaneously ask whether they have allowed enough time for an optimum treatment effect in all patients on oral antipsychotics before resorting to long-acting injectables. A careful examination of patient and clinician factors leading to nonadherence in general may serve to reduce racial disparities in long-acting injectable use.

Drug names: clozapine (Clozaril, FazaClo, and others), haloperidol (Haldol and others), risperidone (Risperdal and others).

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