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**Title: Adherence to Antipsychotic Medications- The Role of the Community Pharmacist**

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**Abstract (295/300)**

Purpose: The purpose of this study is to assess the adherence rates of oral antipsychotics with long-acting injectable (LAI) antipsychotic formulations among patients within a community pharmacy setting. Nonadherence to antipsychotic medications can lead to devastating outcomes for patients. There is a gap between identifying nonadherence in this patient population and implementing interventions in the community setting. This study will provide data to assist pharmacists in having a better understanding of how to help patients improve adherence for antipsychotic medications.

Methods: This is a retrospective review that will analyze data from January 1, 2018 through January 1, 2020 to assess the adherence rates of oral antipsychotic medications with LAI formulations within select pharmacy locations in Illinois of a national grocery store chain. The medications will be identified via their National Drug Code, and are paliperidone, aripiprazole, and risperidone. The refill history of oral antipsychotic medications for patients who are 18 years of age and older and have taken one of the selected medications for a minimum of 6 months will be included. The proportion of days covered (PDC) will be calculated for each patient to determine adherence rate.

Results: The average PDC rate calculated for this study population was 82%. A PDC >80% is considered adherent, and this average is higher than what was expected. However, 35% of patients analyzed had a PDC of less than 80%, and 50% of patients had a PDC of <90%.

Conclusion: Pharmacists have demonstrated their ability to increase patient adherence and long-term outcomes for a variety of medications. When it comes to mental health outcomes, adherence to medications can decrease the chance of relapse and improve quality of life. This study will shed light on adherence to medications that have long-acting injectable formulations; a potential solution to improve adherence.

**Introduction (422)**

Medication nonadherence can have serious effects on patients across all disease states, especially when patients are taking these medications chronically. In the case of antipsychotic medications, the consequences of medication non-adherence can be especially severe. Nonadherence can lead to decompensation or exacerbation of symptoms, relapse, rehospitalization or greater use of emergency psychiatric services, functional decline, and increased risk of death.[1] Pharmacists are often the first to recognize the red flags of nonadherence, late or missed refills. When pharmacists have the full refill history for patients, the proportion of days covered (PDC)rate for each patient can be calculated to show how adherent patients are to medications, including oral antipsychotic medications. PDC is calculated by taking the number of days in the period “covered”, dividing by the number of days in the period, and multiplying by 100%.

Clinical evidence shows that the ideal threshold for PDC is 80%, according to the Pharmacy Quality Alliance.[2] Currently, PDC is assessed for other chronic disease state medications, such as statins and diabetic medications, to ensure that patients are remaining adherent and obtaining the maximum benefit of those medications. If the PDC is low, pharmacists can implement interventions such as automatic refills, reminder phone calls, and periodic check-ins to identify any barriers to adherence. Patients taking oral antipsychotics who have a low PDC should also have these interventions in place. There is currently a gap between identifying nonadherence in this patient population and implementing interventions in the community setting.

As of January 1, 2020, pharmacists in the state of Illinois were authorized to administer long-acting-injectable antipsychotic medications to patients who had an active prescription from their doctor. In states where pharmacists are authorized to administer injectable medications, it is important to understand the trends in adherence and to recognize where pharmacists can make appropriate recommendations to prescribers. It is crucial that pharmacists have a clear understanding of their patients' adherence to oral antipsychotics, and that they can make appropriate interventions and recommendations to switch to LAI antipsychotics when necessary. Pharmacists have the potential to improve outcomes for their patients and the healthcare system. In contrast to existing literature that is focused on oral adherence to antipsychotic medications, this study will focus on oral antipsychotics that have an injectable dosage form available. By collecting this information, pharmacists will have a better understanding of how to help patients improve their adherence for antipsychotic medications. The purpose of this study is to assess the adherence rates of oral antipsychotic medications with LAI equivalents among patients within a community pharmacy setting.

**Objectives (42)**

The primary objective of the study was to assess adherence rates of oral antipsychotics with LAI equivalents among patients within a community pharmacy setting. The secondary objective of this study was to assess characteristics of patients with both high and low adherence.

**Methods (111)**

A retrospective review of oral antipsychotic medication adherence rates with LAI equivalents was conducted from January 1, 2018, until January 1, 2020. Any patient 18 years of age and older receiving oral antipsychotic medications that have an available long-acting injectable formulation during the study period and have taken the medication for a minimum of 6 months was included in the study. Those excluded from the study included patients younger than 18 years of age, patients receiving oral antipsychotics that do not have a long-acting injectable formulation or those patients who have been taking an oral antipsychotic medication for <6 months. Proportion of days covered (PDC) was calculated for each patient analyzed.

**Results (151)**

There were 212,744 prescription records collected for the purposes of this studying. After grouping the records by patient, and applying the inclusion and exclusion criteria, the prescription records of 16,784 patients were analyzed. The average PDC rate calculated among the patients analyzed was found to be 82%, with PDC ranging from 39%-100%. Analysis also

showed that 35% of patients had a PDC of<80%. PDC calculations were capped at 100%, despite the possibility of early refills, since a PDC of >100% was not feasible for the purposes of this study.

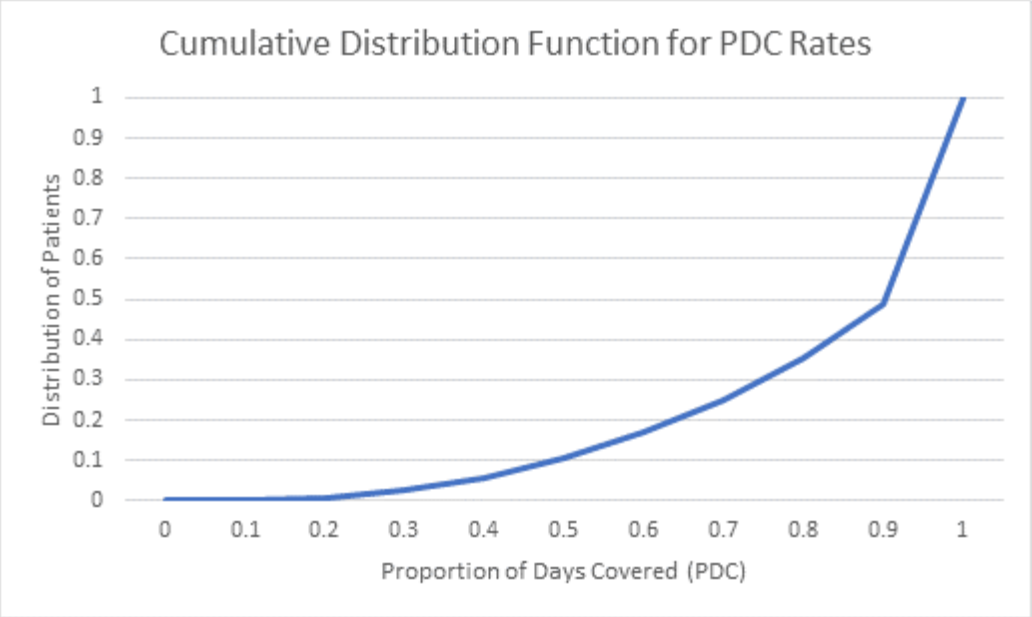


***Figure 1. The Cumulative Distribution Function for PDC Rates.*** This graph describes the proportion of patients at each PDC percentage, from 0 to 1. For example, 50% of the patients had a PDC of 90% or lower. 35% of the patients had a PDC of 80% or lower, and approximately 10% of the patients analyzed had a PDC of 50% or lower.

## Discussion (390)

When looking at PDC as a tool to measure adherence, PDC >80% indicates that a patient is adherent to their medications.[3] The PDC found in this study was higher than anticipated in this patient population, based on past literature and preliminary data results. One study conducted in 2018 found the adherence rate for oral antipsychotics to be 32% for patients taking medications for early psychosis.[4] According to previous studies, adherence rates for second-generation antipsychotics typically hover between 50-60%.[5] Although the average PDC was higher than initially expected, there is still a large number of patients that are not being adherent to their antipsychotic medications.

The study did encapsulate a large group of patients, therefore the 35% (n of 5906) of patients that had a PDC <80% is still substantial. Additionally, patients who are achieving the minimum recommended PDC score of >80% can still benefit from converting to an LAI antipsychotic to further increase their PDC, and potentially improve convenience by decreasing their pill burden.

The final results indicate that in 35% of the patients assessed, it would be appropriate for the pharmacist to intervene in order to improve adherence. Regarding mental health outcomes,

adherence to antipsychotic medications can greatly decrease the chance of relapse and potentially improve quality of life. Pharmacists have demonstrated their ability to increase patient adherence and long-term outcomes for a variety of medications. With patient consent, pharmacists have the ability to discuss with prescribers the switch to injectable alternatives for patients and provide education and administration of these medications.

One of the key limitations of this study is the assumption that all patients should be continuously taking their antipsychotic oral medications. As this is a retrospective study, there are several reasons why a patient may have temporarily discontinued a medication, such as hospitalization, adverse drug events, changing providers, or other barriers. By determining the average PDC for each patient and simply looking at their refill history, it leaves out potentially vital details that may have led to the appearance of "poor adherence". Another limitation of the study is one that commonly occurs when using PDC as a measure of adherence. While PDC of oral medications implies that medications are picked up on time, the pharmacist does not have the ability to measure that the patient is actually taking the medication daily in a community pharmacy setting.

## Conclusion (106)

This study has important implications regarding adherence to an important class of medications. Although the results showed that adherence was higher than expected, LAI antipsychotics may still help to improve PDC and decrease pill burden for patients; even for those patients who show >80% PDC adherence. This study sheds light on adherence to medications that have alternative long-acting injectable formulations, which could be a solution to improve adherence for this patient population. If an alternative exists for a patient that minimizes barriers to adherence, the community pharmacist is the most suitable health care professional that can make that recommendation and greatly improve outcomes for the patient.

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