Health Care Resource Utilization and Costs Associated with Transitioning to 3-Month Paliperidone Palmitate Among US Veterans

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ABSTRACT

Purpose: The aim of this article was to describe and compare treatment patterns, health care resource utilization (HRU), and health care costs before and after transition in veterans with schizophrenia who were transitioned from paliperidone palmitate given once monthly (PP1M) to paliperidone palmitate given every 3 months (PP3M) according to prescribing-information guidelines.

Methods: This retrospective, longitudinal study was conducted using electronic health records data from the Veterans Health Administration (VHA). Veterans were eligible for inclusion if they were aged 18 years or older, had ≥1 dispensation of PP3M, were enrolled with VHA benefits for ≥24 months prior to transition to PP3M, had ≥1 schizophrenia diagnosis, were transitioned to PP3M according to prescribing-information guidelines (operationalized as no gap in PP1M treatment of >45 days during the 4 months prior to PP3M transition, with the same dosage in the last 2 PP1M dispensations), and had appropriate dose conversion. Treatment patterns, HRU, and costs 6 months pre and post PP3M transition were described and compared using the McNemar test and the Wilcoxon signed rank test.

Findings: Of the 277 veterans identified, the majority were men (92.8%); the median age was 56.5 years. Among 197 veterans who had at least 6 months of follow-up pre and post PP3M transition, oral antipsychotic use was significantly decreased (from 49.7% to 43.1%; $P = 0.0326$). Additionally, the mean number of days spent in an inpatient setting (41.4 vs 21.6; $P = 0.0164$), the mean number of outpatient visits per patient (31.0 vs 25.6; $P < 0.0001$), and the mean total health care costs ($27,745 vs $23,772; $P = 0.0050$) were significantly decreased.

Implications: After transitioning to PP3M treatment, veterans had significantly reduced use of oral antipsychotics, HRU, and costs. Although generalizability may be limited due to the veteran population and to those who transitioned according to PP3M prescribing guidelines, future studies in other patient populations may be used to extend these conclusions. (*Clin Ther.* 2018;■:1–13)

Key words: 3-month paliperidone palmitate, health care costs, health care resource use, long-acting injectable antipsychotics, schizophrenia, veterans.

INTRODUCTION

Schizophrenia is a severe, chronic, and debilitating mental illness characterized by poor emotional responsiveness, the breakdown of thought processes, and symptoms including delusions and hallucinations.[1,2] Although schizophrenia has a relatively low incidence rate of 15.2 per 100,000

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person−years, it has a lifetime prevalence of ~1.1% of adults in the United States.[2,3] Because of its early onset and chronicity, schizophrenia contributes significantly to the global burden of disease and is associated with estimated direct medical costs of $43 to $58 billion per year in the United States.[4,5] Patients with schizophrenia are typically pharmacologically treated with lifelong antipsychotic (AP) medications that are instrumental in the effective management of schizophrenia symptoms and relapse control.[6] However, research has shown that adherence to and persistence with AP medications in patients with schizophrenia are poor, which results in poor symptom control, relapse, and therefore significant increases in health care resource utilization (HRU).[7,8]

To improve adherence to medications for the treatment of chronic diseases, including schizophrenia, long-acting injectable (LAI) therapies were developed to be administered on a biweekly or monthly basis instead of the daily dosing required with oral medication.[7,9,10] Long-acting therapies are particularly important in the context of schizophrenia, given the poor rate of AP adherence and resulting consequences. Once-monthly paliperidone palmitate (PP1M), an atypical LAI, is used for the maintenance treatment of schizophrenia in adults and has been associated with significant reductions in schizophrenia-related hospitalizations, health care costs, treatment discontinuation, and treatment nonadherence, as well as a longer time to relapse, relative to oral APs.[11−17] Specifically, in the Paliperidone Palmitate Research in Demonstrating Effectiveness study,[13] PP1M was associated with significant delays in time to first treatment failure when compared to oral APs (hazard ratio = 1.43; $P = 0.011$).

In May 2015, the US Food and Drug Administration approved paliperidone palmitate given every 3 months (PP3M) for the treatment of schizophrenia in patients adequately treated with PP1M, defined as the receipt of a stable regimen of paliperidone with sustained symptom remission (or control).[12] Given the benefits of PP1M in delaying time to treatment failure and reducing HRU and costs, a less frequently administered LAI such as PP3M may also reduce HRU and health care costs by reducing clinic visits for the administration of therapy, and reducing repeat hospitalizations by increasing treatment adherence.[18−22] In a randomized trial in stabilized patients with schizophrenia who received PP3M or placebo, time to first relapse was significantly greater with PP3M (hazard ratio = 3.81; $P < 0.001$), with a median time to relapse of 395 days in the placebo group but not estimable in the PP3M group.[23]

The authors are aware of only 1 study to date that has evaluated the additional benefits of PP3M in clinical practice.[24] That study found that ~85% to 90% of a group of PP3M-treated patients with at least 4 months of follow-up had persistent PP3M use through the second and third doses, but importantly it did not utilize a pre−post design, which may be more appropriate for assessing the association between the transition to PP3M and study outcomes.

The present retrospective study was conducted using data from the Veterans Health Administration (VHA) in order to better understand characteristics, treatment patterns, HRU, and health care costs in patients with schizophrenia transitioned to PP3M according to prescribing guidelines. To evaluate the association between transitioning to PP3M and study outcomes, we implemented a pre/post−PP3M transition study design. To the best of our knowledge, this is the first study using data from clinical practice to assess the effects of PP3M by comparing pre/post−treatment transition periods.

PATIENTS AND METHODS

Study Design and Patient Selection

A retrospective, longitudinal cohort study with a pre−post analytical design was conducted using data from the VHA, spanning September 2015 to April 2017. The VHA has an integrated and unified electronic medical records system, Corporate Data Warehouse, which contains national information on all outpatient visits, hospital stays, treatments, prescriptions, laboratory results, billing, and benefits. The study protocol was approved by the the Veteran's IRB of Northern New England (VINNE) serves as the IRB for the Veterans Affairs Medical Centers in White River Junction, VT, Augusta, ME, and Manchester, NH.

The study population included veterans aged 18 years or older who had at least 1 dispensation of PP3M (with the *index date* defined as the date of the first dispensation) and at least 1 diagnosis of schizophrenia (simple type schizophrenia, disorganized type schizophrenia, catatonic type schizophrenia, paranoid type schizophrenia, schizophreniform disorder, latent schizophrenia, schizophrenic disorder residual type, undifferentiated