Real-world Persistency Outcomes associated with Pimavanserin vs other-AAPs for Parkinson's Disease Psychosis: Analysis of Medicare Beneficiaries from 100% Sample

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INTRODUCTION

- Treatment persistence (i.e., measure of real-world treatment utilization relative to efficacy, safety, and tolerability) with pimavanserin (PIM), the only FDA approved atypical antipsychotic (AAP) for Parkinson's Disease Psychosis (PDP) vs. other-AAPs (quetiapine, risperidone, olanzapine, and aripiprazole) is needed.
- Over a third of patients treated with AAPs among PD patients discontinue therapy within 6-months of initiation.

OBJECTIVE

- To understand the real-world persistency outcomes associated with pimavanserin vs other-AAPs for Parkinson's Disease Psychosis (PDP).

METHODS

Study Design and Data Source

- Retrospective Medicare database analysis of PD patients (≥ 1 ICD-9 and ICD-10 diagnostic claim of 332.0 and G20, respectively) with a psychosis (i.e., PDP) diagnosis (≥1 psychosis or psychotic disorder diagnostic claim: F06.0, F06.2, F22, F23, F28, F29, H53.16, R44.0, R44.1, R44.2, R44.3) from the CMS 100% fee-for-service (FFS) Medicare sample (Parts A, B, and D claims) from 2013 to 2019.

Study Population and Cohorts

- PDP patients who initiate PIM or other-AAP monotherapy (i.e., index date) with a 6-month pre- and 6-post-index follow-up formed the eligible sample. Other-AAP cohort comprised of a mix of patients who initiated the four most commonly used off-label AAPs - Quetiapine, Risperidone, Olanzapine and Aripiprazole.

Exclusion Criteria

- Patients with a pre-index diagnosis of psychosis, secondary parkinsonism, delirium, other psychotic disorders, alcohol/drug-induced psychosis, schizophrenia, paranoia, or personality disorders to avoid confounding.

Study Measures and Outcomes

Demographics: age, sex, race, geographic region, and comorbidities

Persistency Outcomes:

- Discontinuation rates with allowable treatment gap of <= 45-days
- Proportion of days covered (PDC) during follow-up: Number of prescription-days as a function of follow-up (i.e., # of Rx days/180 days)

Statistical Methods

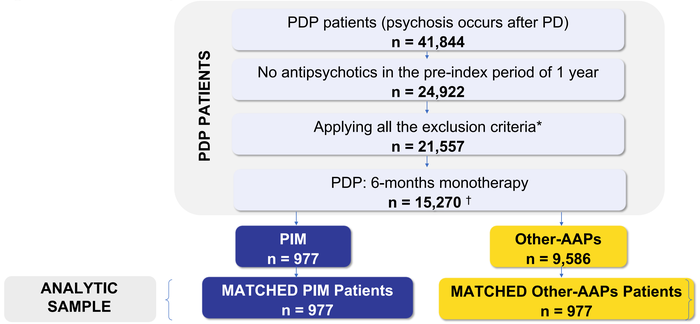
- PDP patients on PIM-monotherapy were 1:1 propensity score matched with other-AAP monotherapy cohort using a nearest-neighbor greedy matching algorithm based on 31 variables (age, sex, region, race, and 27 elixhauser comorbidities).
- Descriptive statistics were reported as frequencies and percentages for categorical variables; mean, median, and range for continuous variables. Additionally, chi-square tests (categorical measures), t-tests, and Wilcoxon-rank Sum tests (continuous measures) were used to describe PIM vs. other-AAPs.
- PDC and Discontinuation rates between PIM vs. other-AAP cohorts were compared using generalized linear models (GLM) which controlled for demographic characteristics, comorbidities, coexisting dementia, and coexisting insomnia.

RESULTS

- Of 10,563 eligible PDP patients who newly initiated monotherapy with ≥ 6 months follow-up, 9.25% (n=977) were on PIM and 90.75% (n=9586) were on other-AAPs.
- Among other-AAPs, 72.68% (n=7677) were on quetiapine, 9.70% (n=1024) were on risperidone, 4.8% (n=507) were on olanzapine and 3.58% (n=378) were on aripiprazole
- Patient disposition for PIM vs. other-AAPs is displayed in Figure 1.
- Mean age across both the cohorts (PIM and other-AAPs) was 77.98 (±7.83) years and 47.80% (n=5,050) were female.

RESULTS (Cont.)

Figure 1. Patient Disposition Flow Chart



*Diagnosis of secondary parkinsonism, delirium, other psychotic disorder, alcohol/drug-induced psychosis, schizophrenia, paranoia, or personality disorders; †Patients treated with other-AAPs (n = 9,586) i.e., risperidone (n = 1024), olanzapine (n = 507), and aripiprazole (n =378) and quetiapine (n=7,116).

PD, Parkinson's Disease; PDP, Parkinson's Disease Psychosis; PIM, pimavanserin

Table 1. Patient Demographics, PIM vs. Other-AAPs (Matched to PIM) Cohort

Characteristics	PIM (n= 977)	Other-AAPs (n= 977)	p-value
Age (in years)			
Mean (SD)	77.36 (7.17)	77.52 (7.19)	0.6224
Median (IQR)	77 (73, 82)	77 (73, 82)	
Minimum, Maximum	(53, 98)	(50, 98)	
Female, n (%)	456 (46.67%)	450 (46.06%)	0.8206
Select Comorbid Conditions, n (%)			
Insomnia	286 (29.24%)	349 (35.67%)	< 0.01
Dementia	708 (72.5%)	814 (83.34%)	< 0.0001

PIM, pimavanserin; QUE, quetiapine AAPs, atypical antipsychotics; SD, standard deviation; IQR, interquartile range

Figure 2. Baseline Comorbidities, Pre & Post Matched Cohorts

Figure 2a. Baseline Comorbidities Pre-Matching

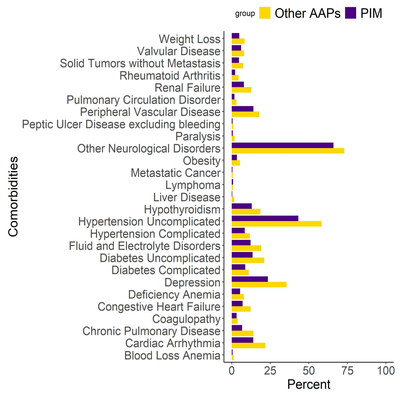
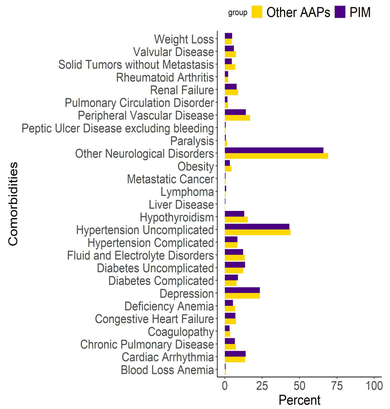


Figure 2b. Baseline Comorbidities Post-Matching



RESULTS (Cont.)

- Among 1:1 matched PIM (n=977) vs. other-AAP (n=977) patients, 7.2% (n=70) vs. 10.2% (n=100) patients on PIM vs. other-AAPs discontinued monotherapy (p<0.05) during 6-month post-index follow-up, suggesting better persistency of PIM as compared to other-AAPs (Figure 3a).
- Mean PDC for PIM vs other-AAP patients was 0.72 (±0.3) and 0.64 (±0.34), respectively (p<0.0001). This suggests that PIM patients had 72% prescription coverage during the 6-month follow-up period as compared to 64% prescription coverage among other-AAP patients (Figure 3b).

Figure 3. Discontinuation rates and proportion of days covered (PIM vs. Other-AAPs)

Figure 3a. PIM vs. Other-AAPs discontinuation rates

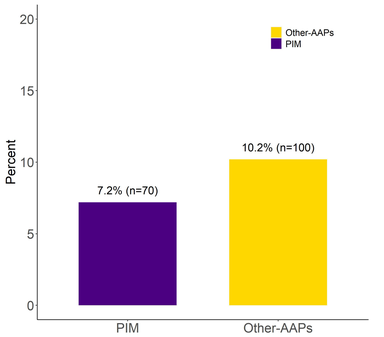
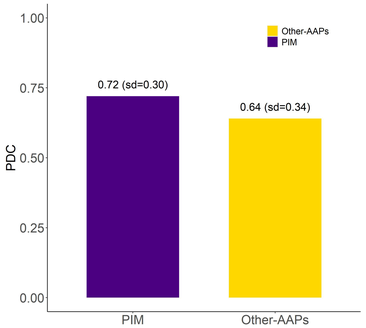


Figure 3b. PIM vs. Other-AAPs PDC



- It should be noted that both the cohorts (PIM and other-AAPs) were on monotherapy (i.e., treatment switch was not allowed). Patients initiating index AAP and then switching to a different AAP therapy were excluded from the analysis.
- This comparative analysis shows that PIM patients have lower discontinuation rates and higher mean PDC, suggesting treatment benefit among PIM patients, given treatment switching is common among PDP patients. .

LIMITATIONS

- The study has limitations that are common to all administrative claims database analyses. Any secondary data, including administrative claims data, may contain coding errors, missed claims, bias introduced by omission of variables, and these should be considered as limitations to these data.
- Identification of psychosis was based on a diagnosis of psychosis-related hallucinations and delusions – there is no diagnostic code for PDP – so it is likely that PDP diagnosis is underestimated.
- While the study addressed potential confounding issues through appropriate matching and covariate adjustment, residual confounding may exist.

CONCLUSIONS

- In this analysis of Medicare beneficiaries, PIM monotherapy treatment for PDP resulted in statistically significant lower discontinuations and higher PDC, potentially demonstrating real world favorable treatment patterns of pimavanserin.

REFERENCES

- Wetmore JB, Li S, Yan H, et al. Increases in institutionalization, healthcare resource utilization, and mortality risk associated with parkinson disease psychosis: retrospective cohort study. Parkinsonism & related disorders. 2019;68:95-101. doi:10.1016/j.parkreldis.2019.10.018

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