Poster

Real-World Medication Adherence Trajectories of Nintedanib among Idiopathic Pulmonary Fibrosis Patients

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Real-World Medication Adherence Trajectories of Nintedanib among Idiopathic Pulmonary Fibrosis Patients

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BACKGROUND AND OBJECTIVE

- Adherence to nintedanib has been evaluated in a few studies among patients with idiopathic pulmonary fibrosis (IPF) using proportion of days covered (PDC) which cannot distinguish between heterogeneous adherence patterns (1-3).
- Group-based trajectory models (GBTMs) identify a best-fitting set of adherence trajectories for patients over time (4).
- The objectives of this study are to assess nintedanib adherence trajectories using GBTMs and understand characteristics of patients within each trajectory.

METHODS

- **Study design:** Retrospective observational study using 100% fee-for-service Medicare claims database.
- **Study population:** Community-dwelling Medicare beneficiaries aged ≥66 years with at least 1 inpatient or 2 outpatient (>14 days apart) medical claims with an IPF diagnosis (ICD-9-CM 516.31 and/or ICD-10-CM J84.112) who initiated nintedanib from October 1, 2014 – December 31, 2018.
- **Analysis:** PDC was calculated for each of the12 consecutive 30-day months based on nintedanib claim fill dates and days' supply. PDC was dichotomized, with PDC≥0.8 considered adherent. A series of GBTMs of adherence were estimated to identify the best-fitting specification. Patients were then categorized into different adherence groups or trajectories based on their adherence patterns. All data management and analyses were conducted with SAS 9.4 (SAS Institute Inc), and Stata 17 (StataCorp LLC) was used for GBTM.

STUDY LIMITATIONS

- Filled pharmacy claims may not represent true medication use.
- Administrative data omit potentially important information, e.g., behavioral factors, patient perceptions that may influence adherence.
- As is customary in any modeling exercise, the identified adherence trajectories are conditional on GBTM assumptions, which may not always hold.

CONCLUSIONS

- GBTM identified five distinct trajectories of nintedanib adherence among IPF patients.
- Age, sex, number of unique prescriptions, baseline heart failure were significantly different between the adherence trajectories.
- Identifying adherence trajectory groups and understanding the characteristics of their members may provide more actionable information to personalize interventions than conventional adherence metrics, such as percent adherent or mean PDC.

RESULTS

- 1,798 patients that met eligibility criteria (Figure 1) were included in the study.
- Sample was on average 75 years old, and predominantly male (61%) and non-Hispanic white (91%) (Table 1).
- 12-month mean (±SD) PDC for all patients was 0.65±0.34.
- The best fitting GBTM specification for PDC ≥0.8 had five adherence trajectory groups, modelled with orders of 3,4,4, 4, and 3 (Figure 2).
- The largest group (43%) was consistently highly adherent (mean PDC 0.96). A second group of medium adherent users (12%) included those whose adherence initially decreased and then improved (mean PDC 0.71). The other three adherence groups included gradual decliners (10%, mean PDC 0.74), intermediate decliners (13%, mean PDC 0.36) and rapid decliners (22%, mean PDC 0.13).
- In unadjusted comparisons, the highly adherent group was younger (mean age 74.7 vs. 75.9 years) with more males (67.9 % vs. 55.7%) and fewer unique prescription medications on average at baseline (10.9 vs. 11.7) than the other four groups (Table 1).

Figure 1. Sample Selection and Attrition

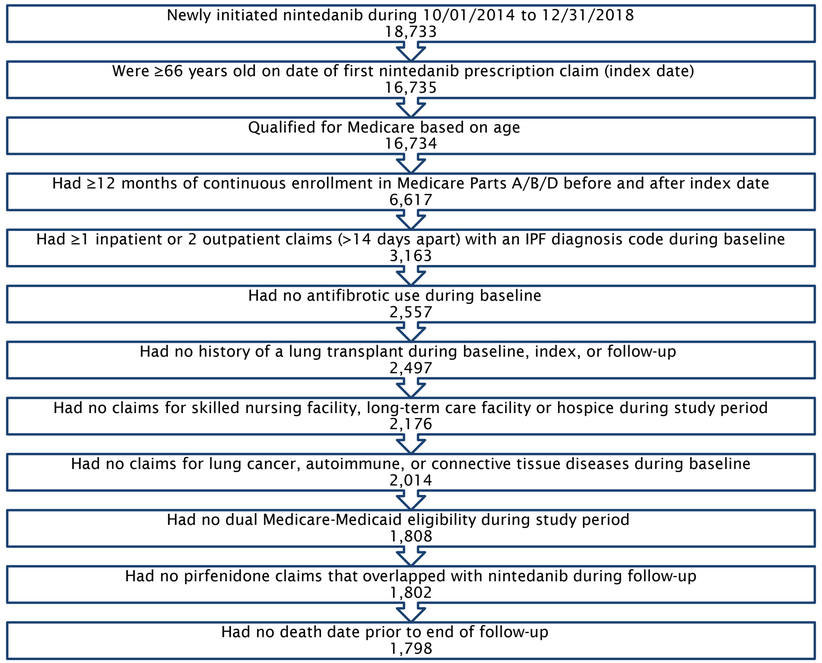
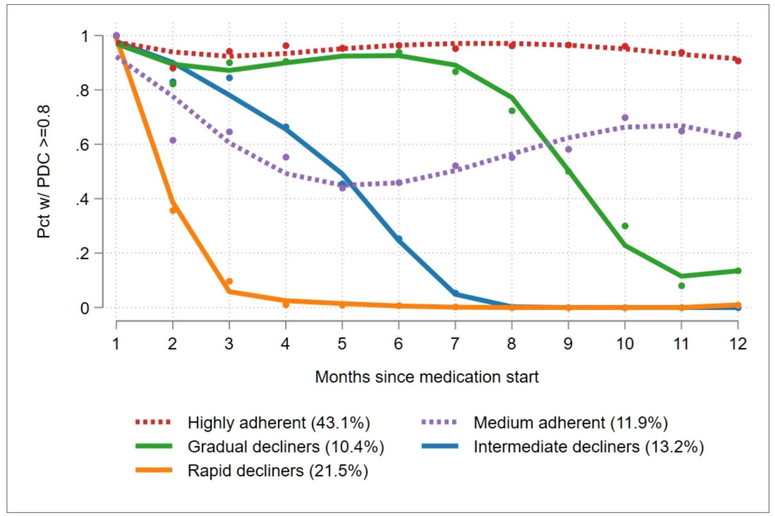


Figure 2. Nintedanib adherence trajectory groups



Pct w/ Percent with; **PDC**: proportion of days covered

Table 1. Baseline Patient Characteristics

Characteristic	Total (N=1798)	Highly adherent (N= 781)	Medium adherent (N= 202)	Gradual decliners (N= 190)	Intermediate decliners (N= 255)	Rapid decliners (N=370)	Overall p-value
Age, years, mean (SD)	75.40 (5.53)	74.65 (5.36)	75.21 (5.45)	75.89 (5.60)	76.29 (5.61)	76.21 (5.62)	<.001
Male sex, n (%)	1,098 (61.1)	530 (67.9)	113 (55.9)	124 (65.3)	138 (54.1)	193 (52.2)	<.001
White non-Hispanic, n (%)	1,638 (91.1)	718 (91.9)	183 (90.6)	171 (90.0)	237 (92.9)	329 (88.9)	0.373
Social Deprivation Index, mean (SD)	40.57 (25.67)	41.63 (25.65)	39.27 (25.10)	39.61 (26.01)	39.61 (25.81)	40.20 (25.77)	0.644
Gagne Comorbidities Index, mean (SD)	2.97 (2.54)	2.86 (2.58)	2.91 (2.54)	2.85 (2.37)	3.14 (2.46)	3.19 (2.59)	0.206
Heart failure, n (%)	616 (34.3)	257 (32.9)	65 (32.2)	53 (27.9)	101 (39.6)	140 (37.8)	0.044
Hospitalization, n (%)	597 (33.2)	269 (34.4)	61 (30.2)	60 (31.6)	71 (27.8)	136 (36.8)	0.136
All-cause OOP costs, 2019 US$, mean (SD)	3,544 (2,934)	3,522 (3,209)	3,367 (2,355)	3,461 (2,555)	3,452 (2,566)	3,791 (3,027)	0.432
Number of unique medications, mean (SD)	11.38 (5.55)	10.94 (5.45)	11.38 (5.87)	11.57 (5.59)	12.04 (5.69)	11.77 (5.41)	0.032

n: Number; **SD**: Standard deviation

References: [1]Corral, Mitra, et al. J of Comp Eff Res.2020; 9(13): 933-943. [2]Corral, Mitra, Kathryn DeYoung, and Amanda M. Kong. BMC pulmonary medicine. 2020; 20(1): 1-12. [3]Ipatova, Anastasia Y., et al. Clin. Med. Insights: Circ. Respir. Pulm. Med. 2019; 13: 1179548419834922. [4]Hickson, Ryan P., et al. Pharmacoepidemiol Drug Saf. 220; 29(3): 357-362

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