RWD124

Validation of treatment patterns in adults with chronic inflammatory demyelinating polyneuropathy in the United States using administrative claims datasets

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Introduction and Purpose

- Insurance claims datasets are widely used tools to capture unique insights across a patient's continuum of care.[1]
- Payers can have an impact on the delivery of healthcare for patients ranging from access, cost, and health outcomes.[2]
- In the United States (US), the representation of patients can vary across insurance payers (Commercial, Medicaid, Medicaid, etc) in different claims datasets depending on the data source, potentially impacting real-world estimates such as treatment usage.
- The objective of this research was to evaluate the external validity of treatment patterns observed among patients with chronic inflammatory demyelinating polyneuropathy (CIDP) across 2 US-based claims datasets.

Methods

- A retrospective cohort study was conducted using 2 separate US-based claims datasets.
- Dataset 1: Komodo Health claims dataset, containing complete medical and prescription claims information from >150 payers across all geographic regions of the US.[3]
- Dataset 2: Optum's de-identified Market Clarity Data (Market Clarity), including data from electronic health records and pharmacy, medical, and administrative claims from multipayer sources for more than 72 million patients in the US.[4]
- The details of the study design are provided in **Figure 1**.

Figure 1. Study design

Dataset
- Patient claims data captured from US-based claims dataset
- Dataset 1: Komodo Health (January 2016 to December 2020)
- Dataset 2: Market Clarity (January 2015 to December 2019)

Population
- Age ≥18 years on index date
- Diagnosed with CIDP

Inclusion Criteria
- ≥2 claims with CIDP diagnosis, ≥30–≤365 days apart (first observed CIDP diagnosis was considered index date)
- Continuous enrollment at a minimum of ±1 year pre- and post-index
- ≥1 nerve conduction test[a] present either after the index date and before another CIDP diagnosis, or ≤90 days before the index date
- Closed claims for dataset 1

Exclusion Criteria
- 2 of the same exclusionary diagnoses during the 2-year study period[b]

Outcomes
- Patient baseline demographics and clinical characteristics (pre- or at index date)
- CIDP-related treatments in the 1-year post-index period

CIDP, chronic inflammatory demyelinating polyneuropathy; US, United States.
[a]Nerve conduction test increases certainty of CIDP diagnosis.
[b]Exclusionary diagnoses included amyloidosis, amyotrophic lateral sclerosis, autoimmune hemolytic anemia, B12 deficiency, celiac disease, chronic lymphocytic leukemia, dermatomyositis, fibromyalgia, Guillain-Barre syndrome, familial neuropathy, human immunodeficiency virus, immune thrombocytopenic purpura, inclusion body myositis, bone marrow transplant, Kawasaki disease, multifocal motor neuropathy, multiple myeloma, multiple sclerosis, myasthenia gravis, necrotizing fasciitis, nonfamilial hypogammaglobulinemia, primary secondary immunodeficiency, sarcoidosis, organ transplant, systemic lupus erythematosus, toxic neuropathy, and cancer chemotherapy.

Results

Patient selection

- After application of the inclusion criteria, 3409 patients with CIDP were identified in dataset 1 (**Figure 2**) and 1290 patients with CIDP were identified in dataset 2 (**Figure 3**).

Figure 2. Dataset 1 patient selection flowchart

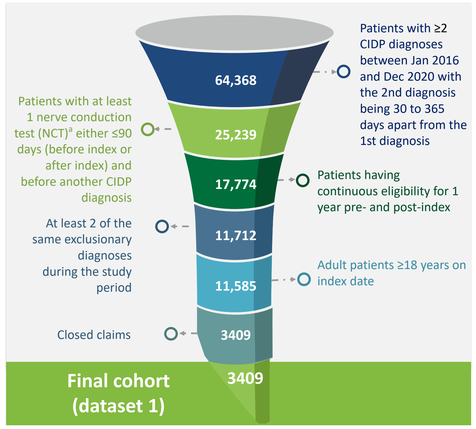
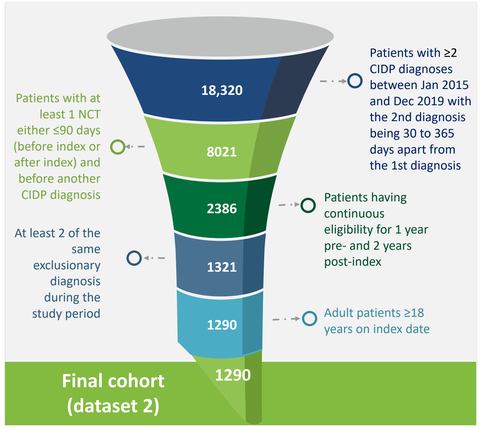


Figure 3. Dataset 2 patient selection flowchart



CIDP, chronic inflammatory demyelinating polyneuropathy; ICD, International Classification of Diseases.
[a]A nerve conduction test requirement was added to increase the robustness and certainty of identifying patients with CIDP.
[b]Exclusionary diagnosis defined in study design.

Baseline demographics and clinical characteristics of patients with CIDP

- The baseline patient demographics and clinical characteristics were similar across the cohorts (**Table 1**).
- The payer mix varied between patients with CIDP identified in the datasets, with a higher proportion of commercial insurance users in dataset 2.

Table 1. Patient demographics and baseline characteristics

	Dataset 1 (N=3409)	Dataset 2 (N=1290)
Age, years, mean (SD)	59.4 (13.9)	60.3 (14.5)
Distribution by age, n (%)		
18–40	335 (10)	129 (10)
41–65	1932 (57)	679 (53)
65+	1142 (33)	482 (37)
Gender, n (%)		
Male	2055 (60)	810 (63)
Female	1354 (40)	479 (37)
Race and ethnicity, n (%)		
Non-Hispanic Caucasian	1405 (41)	755 (58)
Hispanic	292 (8)	26 (2)
Non-Hispanic African-American	162 (5)	57 (4)
Non-Hispanic Asian	25 (1)	10 (1)
Other/unknown	1525 (45)	442 (34)
CCI, mean (SD)	2.0 (2.2)	1.9 (2.0)
Insurance status, n (%)		
Commercial	1680 (49)	747 (58)
Medicare	934 (27)	335 (26)
Medicaid	460 (13)	64 (5)
Other/multiple/unknown[a]	335 (10)	144 (11)
Comorbidities, n (%)		
Diabetes without chronic complication	1054 (31)	398 (31)
CPD[b]	753 (22)	272 (21)
Diabetes with chronic complication	720 (21)	251 (20)
Peripheral vascular disease	514 (15)	223 (17)
Cerebrovascular disease	519 (15)	190 (15)
Renal disease	282 (8)	130 (10)
CHF	341 (10)	123 (10)
Any malignancy[c]	313 (9)	124 (10)

[a]Including self-insured, other/unknown, dual-eligible, or Tricare/Veterans Affairs for dataset 1; unknown for dataset 2.
[b]Including bronchitis, emphysema, asthma, chronic obstructive pulmonary disease, bronchiectasis, pneumoconiosis, and chronic drug-induced interstitial lung disorders
[c]Including lymphoma and leukemia, except malignant neoplasm of skin.

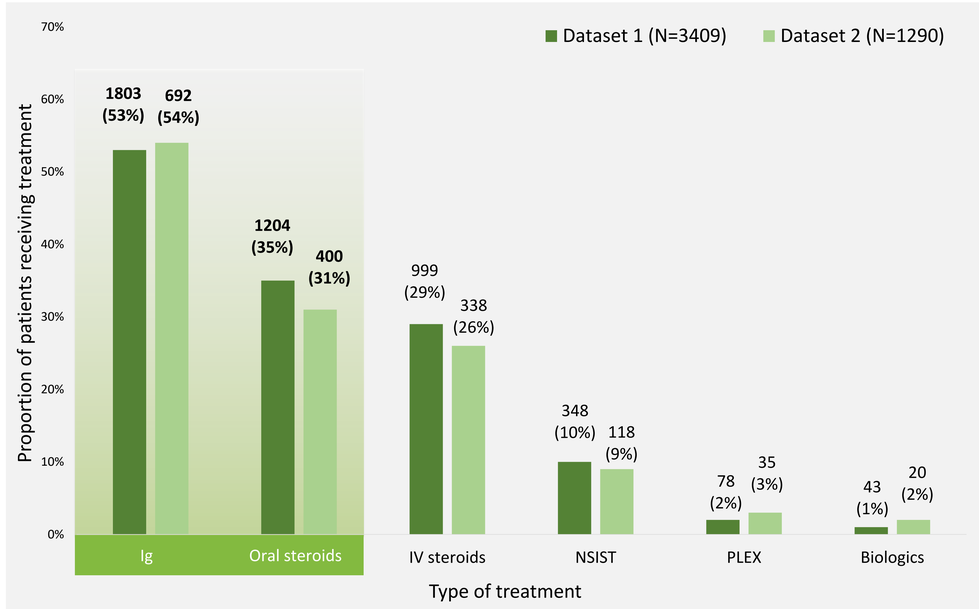
	Dataset 1 (N=3409)	Dataset 2 (N=1290)
Treatments used 1 year prior to index , n (%)		
Steroids	1287 (38)	462 (36)
IVIg/IVIg or SCIg with combinations	521 (15)	196 (15)
IVIg or SCIg	136 (4)	61 (5)
Other combinations/treatments	120 (4)	48 (4)
IVIG	119 (4)	32 (2)
NSIST	33 (1)	0 (0)
PLEX	<5 (<1)	6 (0)
Biologics	<5 (<1)	0 (0)
Laboratory values, n (%)		
CBC	2636 (77)	984 (76)
Comprehensive blood panel	2482 (73)	931 (72)
Hemoglobin A1C	1930 (57)	667 (52)
CT	1195 (35)	447 (35)
MRI	1206 (35)	461 (36)
Serum Ig	879 (26)	337 (26)
Lumbar-spinal puncture	482 (14)	187 (14)
Urine protein	347 (10)	125 (10)
Nerve biopsy	37 (1)	11 (1)

CBC, complete blood count; CCI, Charlson Comorbidity Index; CHF, congestive heart failure, CPD, chronic pulmonary disease; CT, computerized tomography; Ig, immunoglobulin; IVIg, intravenous immunoglobulin; MRI, magnetic resonance imaging; NSIST, nonsteroidal immunosuppressive treatment; PLEX, plasma exchange; SCIg, subcutaneous immunoglobin; SD standard deviation.

CIDP treatments used (1 year post-index)

- Across both datasets, the most common CIDP treatment used was immunoglobulin (Ig) (53%, 54%), followed by oral steroids (35%, 31%) (**Figure 4**).

Figure 4. Patients with at least 1 claim in 1 year post-index for CIDP treatments



Ig, immunoglobulin; IV; intravenous; NSIST, nonsteroidal immunosuppressive treatment; PLEX, plasma exchange.

- A considerable proportion of patients were untreated for CIDP in 1 year post-index across both datasets, with 19% untreated in dataset 1 and 21% untreated in dataset 2 (**Figure 5**).

Figure 5. Proportion of patients receiving any CIDP treatment in 1 year post-index date

Approximately **1 of every 5** patients were **untreated** for CIDP in 1 year post-index across both datasets

(Dataset 1: 19% [n=651]; Dataset 2: 21% [n=271])

Conclusions

- **Across US-based datasets with a varied representation of patients and payers, treatment patterns during 1 year post-index in CIDP were consistent.**
- **Ig and steroids were the most common treatment among patients receiving CIDP treatment, with a considerable proportion (approximately 1 in 5 patients) observed to be untreated for CIDP in 1 year post-index across both datasets.**
- **Further studies should elaborate on treatment patterns and identify burden and unmet need that may be experienced by patients with CIDP.**

Limitations

- This study intended to evaluate high-level validity of cohorts of patients with CIDP identified from each dataset. As the claims datasets used included information captured from different sources and patients, granular results should not be directly compared against one another as data are collected differently.
- Retrospective datasets are limited in capture of disease-related parameters, such as disease severity.
- As the study populations were based on US claims datasets, study findings may not be generalizable to patients in other geographical regions.

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