EE146

Comparative Analysis of the Burden of Illness Among Juvenile Idiopathic Inflammatory Myopathy Versus Juvenile Idiopathic Arthritis in the United States

Jason Xenakis[1], Jessica Chung[1], Cecilia E. Borlenghi[2], Griffith Bell[1], Leo Chen[1], David Oliveri[3], Rohit Aggarwal[4]

[1]Pfizer Inc., USA, [2]Pfizer Inc., Argentina, [3]Genesis Research Group, Hoboken, NJ, USA, [4]Department of Medicine, University of Pittsburgh, Pittsburgh, PA, USA

Background

- Juvenile idiopathic inflammatory myopathies (JIIMs) are a group of rare autoimmune disorders resulting in characteristic skin rashes, muscle weakness, and extra-muscular manifestations[1]
- Juvenile idiopathic arthritis (JIA), a more prevalent condition compared to JIIM, predominantly manifests as joint pain, swelling, and stiffness[2]
- Biologics represent the current standard of care for JIA. However, there are no FDA-approved treatments or guidelines for JIIM[1, 2]. This leads to variability in disease management and poorly managed disease, impacting patient quality of life and contributing to overall economic burden
- Moreover, there is limited evidence on the healthcare cost and resource utilization (HCRU) of JIIMs compared to other conditions like JIA in the US. Individual studies exist, however no direct comparisons between JIIM and JIA are available[3, 4]

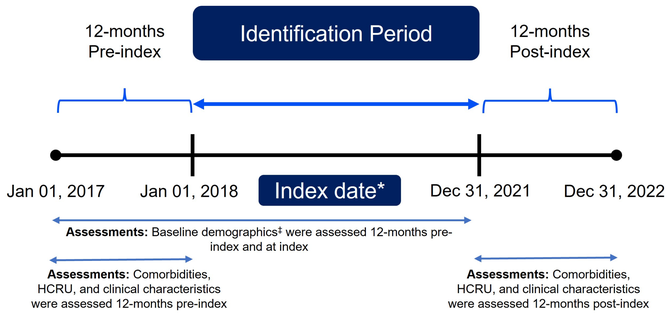
Objective

This study compares the real-world clinical and economic burden in patients with JIIM vs JIA in the US

Methods

- Patients with JIIM or JIA diagnosis*, aged 2–17 years, with ≥2 claims in any healthcare setting** and continuous enrollment in healthcare insurance plans (≥12-months pre- and post-index) were included. Patients diagnosed with both JIIM and JIA were excluded **(Figure 1)**
- Data was extracted from IQVIA Pharmetrics® Plus database*** for patients with JIIM or JIA diagnosed between Jan 01, 2018–Dec 31, 2021 (index date****)
- Baseline covariates were adjusted using stabilized inverse probability treatment weighting (IPTW)
- Comorbidities, HCRU, and clinical characteristics were assessed 12-months post-index (JIIM, n=105; JIA, n=1841)

Figure 1. Study design



*JIIM diagnosis codes: M33.0, M33.1, M33.2, M33.9, M36.0; JIA diagnosis code: M08
**"In any healthcare setting" refers to the inclusion criteria for the patients with JIIM or JIA. It means that patients with at least two claims, with either a primary or secondary diagnosis code, are included in the cohort, regardless of the healthcare setting in which the claims were made. This includes claims from inpatient, outpatient, emergency department, or other types of medical encounters
***IQVIA PharMetrics® Plus is a medical claims database of US healthcare plans.
****The index date is defined as the first date of diagnosis for JIIM or JIA within the study identification period, i.e., between Jan 01, 2018–Dec 31, 2021
‡The baseline characteristics were well balanced between the two groups after IPTW
HCRU, healthcare cost and resource utilization; IPTW, inverse probability treatment weighting; JIA, juvenile idiopathic arthritis; JIIM, juvenile idiopathic inflammatory myopathies

Results

- **Post-index Comorbidities**
  Post-index comorbidities (interstitial lung diseases, dysphagia, dysphonia, Sjogren's syndrome, osteoporosis) were reported more frequently in patients with JIIM vs JIA **(Table 1)**

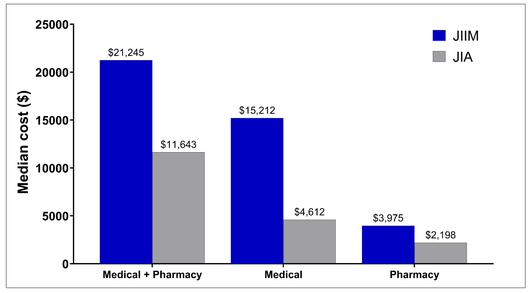
Table 1. Frequency of comorbidities during the post-index period (IPTW)

Comorbidities; n (%)	JIIM only* (n=105)	JIA only* (n=1,841)
Sjogren's Disease/Sicca	2 (2.2)	5 (0.3)
Raynaud's syndrome	1 (1.3)	22 (1.2)
Dysphagia	8 (7.9)	17 (0.9)
Dysphonia	2 (2.0)	7 (0.4)
Interstitial Lung Disease (ILD)	3 (3.2)	3 (0.2)
Osteoporosis	1 (1.2)	3 (0.2)
Opportunistic Infections	3 (3.1)	48 (2.6)
Other juvenile comorbidities	8 (7.7)	88 (4.8)

*Patients with either JIIM or JIA
Post-index=One day post-index date to twelve months post-index date
*Frequencies in each row are weighted via IPTW adjustment using age (continuous), sex, year of index date, and CCI (categorical: 0–1, 2+). Weights are stabilized by the observed frequency within the whole population
*Other comorbidities were evaluated but the counts of patients were very low
CCI, charlson comorbidity index; IPTW, inverse probability treatment weighting; JIA, juvenile idiopathic arthritis; JIIM, juvenile idiopathic inflammatory myopathies

- **Post-index Medical and Pharmacy Cost**
  Medical and pharmacy costs were higher for patients with JIIM vs JIA; this cost difference persisted even when examining medical and pharmacy costs separately across patient groups **(Figure 2)**

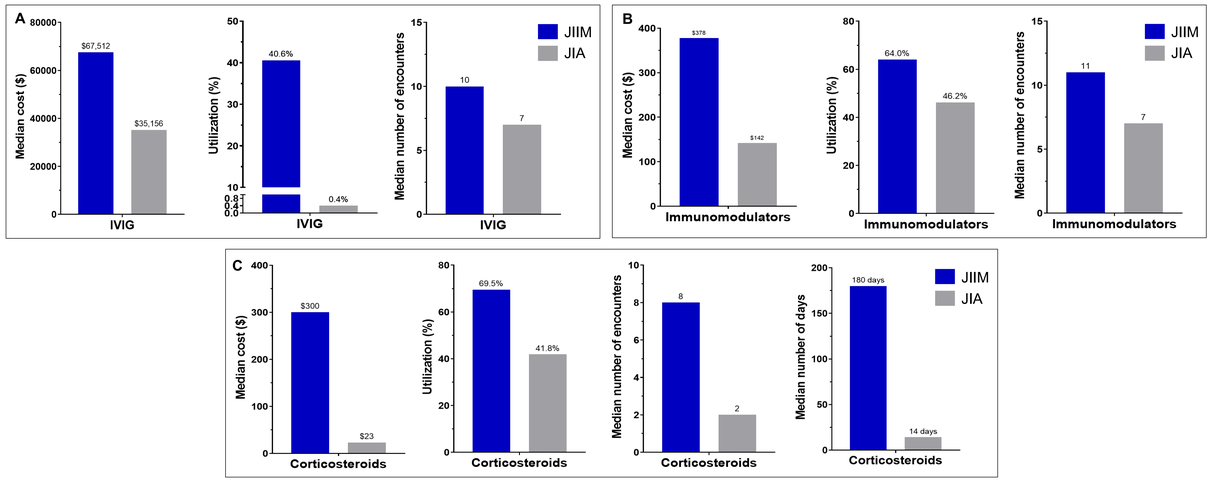
Figure 2. Median total medical and pharmacy costs, medical costs alone, pharmacy costs alone during the post-index period



JIA, juvenile idiopathic arthritis; JIIM, juvenile idiopathic inflammatory myopathies

- **Post-index Pharmacy Costs, Utilization, and Encounters**
  Pharmacy cost, utilization, and encounters were higher for IVIGs, immunomodulators, and corticosteroids in patients with JIIM vs JIA, with greater number of days treated on corticosteroids observed for JIIM **(Figure 3)**

Figure 3. Median pharmacy cost, utilization, and encounters during the post-index period



IVIG, intravenous immunoglobulin; JIA, juvenile idiopathic arthritis; JIIM, juvenile idiopathic inflammatory myopathies

Conclusions

- Patients with JIIM experienced more comorbidities than those with JIA
- Overall HCRU rates were higher in patients with JIIM vs JIA
  - Medical and pharmacy costs and utilization of corticosteroids, immunomodulators, and IVIG were higher in patients with JIIM vs JIA
  - Significantly higher IVIG utilization was observed in patients with JIIM vs JIA
- Patients with JIIM had more days of corticosteroids usage than those with JIA. Higher corticosteroid usage may indicate less well-controlled disease
- These results highlight the unmet need for effective treatment options for JIIM
- **Study limitations**: Inherent limitations of claims data include non-confirmation of medication consumption as prescribed, diagnostic codes not checked for accuracy in some cases, selection of primarily commercially insured patients, and absence of disease severity measures

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