Burden of Illness in Patients with Pulmonary Hypertension due to Interstitial Lung Disease: A Real-World Analysis using US Claims Data

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Purpose and Methods

- Pulmonary hypertension due to interstitial lung disease (PH-ILD) progresses rapidly and is associated with poor survival, quality of life, and outcomes.
- The **purpose** of this study was to characterize real-world healthcare resource utilization and costs associated with PH-ILD.

**Data source:** IBM MarketScan Commercial and Medicare Supplemental.

**Identification Period:**
06/01/16 through 06/30/18

**Index Date:**
Date of first PH Diagnosis

**12-Months Pre-Index**

**12-Months Post-Index**

**Inclusion Criteria**
- Aged ≥18 years old at index
- ≥1 medical claim for ILD in the 12-month pre-index
- Continuous health plan enrollment 12-months pre-index
- Continuous health plan enrollment 12-months post-index

**Exclusion Criteria**
- ≥1 medical claim for PH prior to ILD diagnosis
- ≥1 medical claim with diagnosis for other non-ILD Group 3 PH conditions
- ≥1 medical claim with diagnosis for Group 2, 4, or 5 PH conditions
- Only 1 outpatient or 2 outpatient claims <30 days apart for PH
### Baseline Characteristics / Treatment Patterns

**Characteristic** | PH-ILD N=122
---|---
**Age-Group**, mean (SD) | 63.7 16.6
**Males, n (%)** | 43 35.5%
**Geographic Region, n (%)** |  
Northeast | 30 24.6%
North Central | 31 25.4%
South | 39 32.0%
West | 22 18.0%
**Payer Type, n (%)** |  
Commercial | 67 54.9%
Medicare Supplemental | 55 45.1%
**Index Year, n (%)** |  
2016 | 49 40.2%
2017 | 53 43.4%
2018 | 20 16.4%
**CCI, Mean (SD)** | 3.2 (1.9)
**CCI Categories, n (%)** |  
0=low | 0 0.0%
1 | 23 18.9%
2 | 29 23.8%
≥3 | 70 57.4%

#### Abbreviations:
- CCI: charlson-comorbidity index
- ERA: endothelin receptor antagonist
- PDE5i: phosphodiesterase-5 inhibitor
- SD: standard deviation
- SGC: soluble guanylate cyclase

### Antifibrotic Agents

- **Pre-Index**
  - Corticosteroids: 43%
  - Calcium channel blockers: 37%
  - Oxygen: 25%
  - Nintedanib: 12%
  - Pirfenidone: 6%

- **Post-Index**
  - Corticosteroids: 53%
  - Calcium channel blockers: 25%
  - Oxygen: 25%
  - Nintedanib: 2%
  - Pirfenidone: 3%

### PAH-Specific Medications

- **Pre-Index**
  - ERA: 2%
  - PDE5i: 3%
  - SGC: 0%
  - Prostacyclin: 0%

- **Post-Index**
  - ERA: 0%
  - PDE5i: 0%
  - SGC: 0%
  - Prostacyclin: 1%
Pre- vs Post-Index Healthcare Resource Utilization and Costs

Percent of Patients Receiving Hospital or ICU Care in the 12-months pre- vs post-Index

- **100% Increase in hospitalizations**
- **59.0%** hospitalized Pre-Index
- **29.5%** hospitalized Post-Index
- **p<0.0001**

- **161% Increase in ICU use**
- **6.6%** ICU use Pre-Index
- **17.2%** ICU use Post-Index
- **p=0.0433**

All-Cause Total Healthcare Costs in the 12-month pre- vs post-index

- **$43,201** Pre-Index Total Costs
- **$108,387** Post-Index Total Costs
- **151% Increase in medical and pharmacy costs**
- **$7,913** Pre-Index Medical Costs
- **$35,287** Pre-Index Pharmacy Costs
- **$13,153** Post-Index Medical Costs
- **$95,233** Post-Index Pharmacy Costs
- **p<0.0001**
Conclusions / Clinical Implications

- Following initial diagnosis of PH due to ILD, patients have significantly increased utilization of healthcare resources, including inpatient admissions.
- Healthcare costs significantly increase after diagnosis of PH-ILD, largely driven by medical costs.
- Timely management and treatment of PH-ILD is needed to mitigate the clinical and economic consequences of disease progression.