Cost and Healthcare Utilization in Asthma Patients with High Oral Corticosteroid-Use

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Rationale

- Treating asthma with oral corticosteroids (OCS) is effective, but comes with significant side effects.
- Despite these risks, a sub-population of severe persistent asthma patients whose disease cannot be controlled with both inhaled steroids (ICS) and a second controller requires long-term OCS treatment.4
- The threshold of ≥30 days of OCS filled in a year identifies a subset of moderate to severe asthma patients who are persistently high OCS users.2
- Little is known about how the cost and healthcare utilization of these “high OCS” users compares to their low-OCS using counterparts.
- Our objective was to compare healthcare resource use and economic outcomes between high- and low-OCS users.

Methods

- We identified moderate-to-severe persistent asthma patients with ≥2 asthma claims, ≥2 asthma medications, EPR3 Step 4-6 (using a validated algorithm2), ≥18 years of age, who were enrolled during calendar year 2013 from a US commercial claims database.
- OCS use was classified as:
  - High: ≥1 fill of ≥30 days, or ≥6 bursts of OCS (days of supply ≥15)
  - Low: no OCS fills with days of supply ≥30, and <2 bursts
- Patients with COPD were excluded.
- Outcomes of interest were all-cause and asthma-related utilization and cost.
- “Asthma-related” defined by claims with a primary diagnosis of asthma (and including asthma medications as an asthma related cost).

Statistical Analysis

- Survival analyses to account for differential follow-up
- Analysis of covariance (ANCOVA) and logistic regression were used to compare high and low OCS groups, adjusted by age, gender, race, region, usual physician specialty, Charlson Comorbidity Index, pneumonia or influenza hospitalization, and EPR3 step therapy1
- All statistical analyses used SAS® version 9.4

Results

- Mean unadjusted total healthcare cost was $63,939 for high OCS users and $27,494 for low OCS users (p<0.001) (Figure 1).
- Mean unadjusted asthma-related healthcare costs was $7,595 for high OCS users and $2,864 for low OCS users (p<0.001). (Table 1)
- Adjusting for demographics, clinical characteristics and disease severity:
  - Mean total healthcare cost for high OCS users was $17,122 (p<0.001) more than low OCS users, asthma related costs were $3,727 (p<0.001) more.
  - High OCS users had an excess of 7.2 (p<0.001) HCP office visits and 2.0 (p<0.001) asthma-related office visits in a year (Figure 1)
  - The odds of hospitalization (overall and asthma-related) were higher in high OCS patients, as was the rate of overall ED visits (but not asthma-related ED visits) (Table 2). (Table 1)

Conclusions

- Before adjustment, total all-cause and asthma related utilization was higher among patients with at least 1 OCS fill ≥30 days or multiple bursts of OCS (high user) than low OCS users.
- After multivariate adjustment, both total and asthma-related annual cost remained twice as high in the high OCS group (p<0.001).
- Utilization, including hospitalization and office visits, remained significantly higher as well for most categories.
- High-OCS exposure may be a marker for lack of asthma control and resultant increase in resource use and costs.
- This simple exposure variable may be useful for identifying a group of high cost/high utilization asthma patients.

References

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