Associations between Antibiotic Exposure and Stevens-Johnson Syndrome (SJS) and Toxic Epidermal Necrolysis (TEN): A Case-Control Study Using PharMetrics® Health Plan Claims Data

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Background

- SJS, SJS-TEN overlap syndrome (SJS-TEN), and TEN are rare disorders of the skin and mucosal membranes, characterized by keratinocyte apoptosis, and are usually the result of an adverse drug reaction.
- Antibiotics are most commonly implicated.\(^1\)
- Estimated incidence is 1-2 people per million per year.\(^2\)
- Severity is distinguished by the percentage of skin sloughing that occurs over the body.\(^3\)
- Mortality depends on severity of disease: SJS: 10%, SJS-TEN Overlap Syndrome: 30%, TEN: 50%.\(^2\),\(^3\)
- Gaps in the current literature:
  - Small sample sizes
  - Most comprehensive studies only look at the European population
  - Studies do not look at past exposures to suspected prescription medications

Objective

- Examine the association between antibiotic exposure and SJS, SJS-TEN, and TEN.

Methods

- Case-control study leveraged data from a ten percent random sample of the PharMetrics LifeLink® Health Plan Claims Database from 2001 to 2013.
- Case inclusion criteria:
  - ICD-9 code 695.13-695.15
  - 12 months continuous health plan enrollment prior to index diagnosis
  - 1 month continuous health plan enrollment following index diagnosis
- Controls had no SJS, SJS-TEN, or TEN diagnoses
- Cases matched to controls in a ratio of 1:4 on age, gender and continuous health plan enrollment
- Simple logistic regression and multivariate logistic regression used to calculate unadjusted and adjusted odds ratios, respectively.
- Odds ratios calculated for antibiotic prescription fills overlapping diagnosis, 3 months, 6 months, and 1 year prior to diagnosis.

Results

- After adjusting for covariates, an antibiotic fill overlapping a diagnosis was significantly associated with SJS, SJS-TEN, and TEN (OR=10.4; 95% CI 5.1-21.1 ).
- The farther back the exposure goes, the less association there is between the antibiotic exposure and the disease.

Conclusions

- There was a significant association between antibiotics and SJS, SJS-TEN, and TEN.
- Further studies on antibiotics and other medications are necessary, particularly OTCs

References