Epidemiology of Neuroendocrine Tumors (NET) of the Lung in the US: Analysis of 2 Large Insurance Claims Databases

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BACKGROUND
• U.S. incidence of all neuroendocrine tumors (NET) increased from 10.9 cases per million person-years (PMPY) in 1973 to 52.5 PMPY in 2004 as reported in SEER.7
• Prevalence was reported as 350 per million-person-year for all NET.
• Bronchopulmonary or lung NETs represent approximately 20%-25% of primary NETs.7
• Incidence and prevalence may have continued to increase since 2004, but no published studies exist.

METHODS
• Retrospective, cross-sectional study using 2010-2014 data from 2 U.S. commercial claims databases: Truven Health Analytics MarketScan and IMS PharMetrics.

Inclusion Criteria:
• Age ≥ 18, AND
• ≥1 incident or ≥2 outpatient claims for lung NET (ICD-9 CM: 209.21 [Benign carcinoid tumors of bronchus and lung], 209.61 [Benign carcinoid tumors of bronchus and lung], 209.20-209.29 [Malignant carcinoid tumors of bronchus and lung], 209.60 [Benign carcinoid tumors of bronchus and lung]) in a given calendar year

Study Measures:
• Prevalence was number of lung NET patients divided by number of enrollees/year.
• One year of continuous enrollment in the year of diagnosis was required.
• Incidence was number of patients with a first observed NET diagnosis who were disease free for 2 years prior, divided by number of enrollees.
• Three years of continuous enrollment (year of diagnosis and two years prior) was required.

RESULTS
From 2010 to 2014,
• Prevalence (Table 1; Figures 1-3)
  Increased from 19.0 to 30.4 per million per year in MarketScan
  Increased from 18.9 to 26.2 per million per year in PharMetrics
  Was highest in 55-64 year olds (from 45.0 to 79.0 depending on year and data source)
  Approximately half of prevalent cases were in patients between 55 and 64 years of age
  Was greater in females (from 22.6 to 39.3) than in males (from 18.8 to 20.6)
• Incidence (Table 2; Figures 4 and 5)
  Increased from 15.9 to 19.2 PMPY in MarketScan
  Increased from 13.1 to 16.0 PMPY in PharMetrics
  Approximately two-thirds of incident cases were female
  Between half to two-thirds of all incident cases were among those between 55 and 64 years, on the year and data source

CONCLUSIONS
• In both databases, the incidence and prevalence of lung NET have increased considerably from 2010 to 2014. In 2014, the highest prevalence seen was in MarketScan at 30.4 per million per year, a 60.0% increase from 2010; and the highest incidence was seen in MarketScan at 19.2 PMPY, a 21.7% increase from 2011.
• The increased incidence may be due to better diagnostic methods, greater awareness of NET among clinicians and pathologists, and/or an actual increase in disease occurrence in the U.S. population.
• Increased prevalence likely results from longer survival and increasing incidence.6
• In order for physicians and health plans to appropriately manage this larger population, it may be necessary to improve awareness of safe and effective treatment options.
• Further, with only one FDA approved treatment for lung NET (everolimus, approved Feb 2016), the development of additional treatment options for these patients is needed.

LIMITATIONS
• These results only reflect patients with commercial insurance and do not include those with Medicaid, Medicare or uninsured individuals. Results may not be nationally representative.
• Study patients were identified using ICD-9-CM codes; pathologic diagnosis could not be confirmed in this administrative database.

REFERENCES

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