

Title: Trends and Disparities in Incidence and Survival Outcomes for Lung Neuroendocrine Tumors in California.

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Background: Typical and atypical lung neuroendocrine tumors (NETs) are a relatively rare, heterogeneous group of cancers with a wide spectrum of clinical behavior. Similar to other primary NET sites, the incidence of lung NETs appears to have increased over the last 40 years. This rising incidence contrasts with the declining incidence of non-small cell and small cell lung carcinomas, which are largely smoking related, and suggests distinct underlying risk factors. However, little is known about the epidemiology of lung NETs.

Experimental Approach: In this population-based study, we seek to quantify the sociodemographic and geographic patterns of incidence and overall survival among individuals diagnosed with lung NETs (both typical or atypical histology) in the diverse state of California from 1992-2017. We will utilize data from the California Cancer Registry (CCR), a uniquely rich data source encompassing nearly all cancer diagnoses within the state. Using SEER*Stat and JoinPoint regression, we will estimate age-adjusted incidence rates, incidence rate ratios, and annual percentage change of lung NETs over time in California, focusing on differences in incidence patterns by race/ethnicity, sex, geographic region (classified as rural, suburban, or urban), and year of diagnosis. We will also quantify overall survival for Californians with lung NETs using Kaplan-Meier survival estimates and fitting Cox proportional hazards regression models to assess the impact of sociodemographic and geographic factors (including race/ethnicity, sex, and rural versus urban residence) on survival.

Expected Results: At the NETRF symposium, we plan to report baseline characteristics of our study population and preliminary analysis of incidence and survival. We estimate approximately 5,000 total cases of lung NETs in the CCR during our study period based on preliminary evaluation of the dataset.

Conclusions and Next Steps: We anticipate that our analysis will document the burden of lung NETs by sociodemographic subgroups. Understanding incidence patterns is a key first step to inform etiologic studies, particularly since few lung NET cases can be attributed to familial syndromes. In addition, our goal is to identify predictors of survival and highlight any disparities. We hope the data generated from this analysis will be hypothesis-generating and identify opportunities to improve outcomes for all patients with lung NETs. Down the line, the CCR has the ability to interface with other secondary datasets to further expand on initial research findings.