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Trends in the Incidence and Survival Outcomes in Patients With Lung Neuroendocrine Neoplasms in the United States



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BACKGROUND: The incidence and prevalence of Neuroendocrine Neoplasms (NENs) are rapidly rising. Epidemiologic trends have been reported for common NENs, but specific data for lung NENs has been lacking.

METHODS: We conducted a retrospective population-based analysis utilizing the Surveillance, Epidemiology, and End Results (SEER) database, and studied lung NENs patients from 1988 to 2015. Associated population data was utilized to report the annual age-adjusted incidence and overall survival trends. Trends in the incidence and survival of large-cell lung cancer (LCLC) and atypical carcinoid (AC) were reported from 2000-2015, while that for typical carcinoid (TC) and small cell lung cancer (SCLC) were reported from 1988-2015.

RESULTS: We examined a total of 115,995 lung NENs [103,980 – SCLC; 3,303 – LCLC; 8,146 – TC; 656 – AC]. The age-adjusted incidence rate revealed decline in SCLC from 8.6 in 1988 to 5.3 in 2015 per 100,000; while other NENs showed an increase: TC increased from 0.57 in 1988 to 0.77 in 2015 per 100,000, AC increased from 0.17 in 2001 to 0.22 in 2015 per 100,000, & LCLC increased from 0.35 in 2001 to 0.41 in 2015 per 100,000. On multivariable analyses, the median overall survival (OS) and disease-specific survival (DSS) rate varied significantly by age at diagnosis, sex, histological type, stage, grade, insurance type, marital status, and race. The 5-year OS rate among SCLC and LCLC patients was 5% and 17%, respectively, consistent with their high-grade nature. On the other hand, TC and AC, representing low-grade neuroendocrine tumors, had good 5-year OS: 84% and 64%, respectively.

CONCLUSION: The incidence of lung NENs is rising, possibly because of advanced radiological techniques. However, we have seen a downtrend in the incidence of SCLCs likely because of declining smoking habits. Such population-based studies are essential for resource allocation and to prioritize future research directions.

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