SMALL CELL LUNG CANCER: EPIDEMIOLOGICAL PATTERNS AND MUTATIONAL PROFILE IN THE UNITED STATES

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BACKGROUND

Small cell lung cancer (SCLC) is a relatively uncommon type of lung cancer that accounts for nearly 14% of new diagnoses but associates with worse outcomes. We tried to use publicly available databases to provide an overarching description of the current epidemiological patterns and mutational profiles of SCLC in the United States.

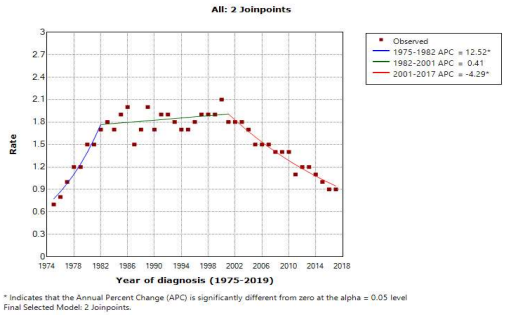
METHODS

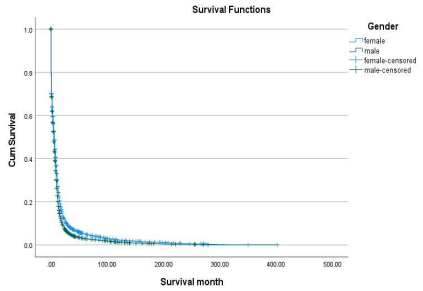
Clinical and epidemiological data of SCLC were extracted using SEER database [8 reg; Nov 2021 Submission].Sequencing data were obtained through The American Association of Cancer Research (AACR) project GENIE database. Subgroup analyses were performed according to race, gender, and age group. Annual percent change(APC) of incidence and survival rates were calculated using The NIH's Joinpoint Regression Program, version4.9.1.0.

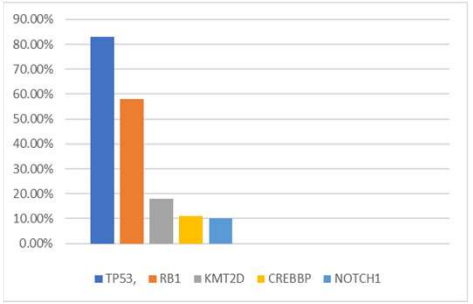
RESULTS

We included a total of 13,966 SCLC patients (7,622 males; 6,344 females) who were diagnosed with SCLC between1975 and 2019. The overall incidence rate was 1.45 per 100,000 [95% CI, 1.43-1.48]). Incidence was higher in males compared to females (1.79 [95% CI, 1.74-1.83] vs 1.2 [95% CI, 1.17-1.23]), in patients of white race compared to patients of black race (1.56 [95% CI, 1.53-1.59] vs 1.23 [95% CI, 1.14-1.33]), and in people aged 75-79 compared toother groups (8.7 [95% CI, 8.3-9.1]. There was a significant increase in incidence between 1975 and 1982 (APC =12.52% (95% CI, 8.1-17.1, p<0.001). Incidence remained almost steady between 1983 and 2000 before an observable decline starting in 2001 (APC of −4.3%, 95% CI, [−5.2, −3.4], p<0.001). In the overall population, the median overall survival was 6 months [95% CI, [5.8, −6.2]] and was significantly longer among females compared with males (6 months vs 5 months, p<0.001). Survival rates increased significantly since 1975 (APC = 1.4% (95% CI,0.4-2.4, p=0.006)).

In 515 patients with available sequencing data, the most frequently mutated genes were TP53, RB1, KMT2D,CREBBP, and NOTCH1 (83.9%, 58.7%, 18.5%, 11.9%, and 10.9%; respectively).







CONCLUSION

Over the past few years, there has been a significant decrease in incidence and increase in survival of SCLC. The most frequently observed mutations were in TP53, RB1, KMT2D, CREBBP, and NOTCH1 gene.

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