

# **Clinical outcome in patients with early-stage small-cell lung cancer treated with surgery or radiation in the absence of prophylactic cranial irradiation: A single-center retrospective study**

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## **Abstract**

**Purpose:** As screening chest computed tomography for patients at high-risk for cancer has become more widely accepted, increasing numbers of patients with early-stage small cell lung cancer (SCLC) are being diagnosed. Although surgery is an accepted option for patients with early-stage SCLC, for patients who decline or cannot undergo surgery, stereotactic body radiation treatment (SBRT) is an alternative. While prophylactic cranial irradiation (PCI) improves survival in patients with limited stage SCLC, PCI for early-stage SCLC (T1-T2) has not been explored. Here we define survival and recurrence patterns in patients with early-stage SCLC who were treated with surgery or SBRT in the absence of PCI.

**Materials and Methods:** A retrospective cross-sectional study of 14 patients diagnosed with early-stage SCLC (Stage T1-T2) between July 2015 and May 2021 at a single tertiary care hospital that were treated with SBRT or surgery with no PCI. Primary outcomes were

locoregional cancer recurrence, distant recurrence, recurrence-free survival, and overall survival. Secondary outcome was development of brain metastasis. Analyses included Cox regression, Kaplan-Meier survival, and log-rank tests.

**Results:** A total of 14 patients (5 women and 9 men) were included in the study: 9 with Stage T1 and 5 with Stage T2 SCLC. Six patients (43%) received SBRT and 8 (57%) had surgical treatment. All patients except one received adjuvant chemotherapy. Median follow-up was 14.3 months (range 2.4–64.4), and median age at diagnosis was 71.5 years (range 54–81). Cox regression and log-rank tests showed no significant differences in any outcomes between the surgery and SBRT groups, and no patients developed brain metastases during the study period.

**Conclusions:** Patients with early-stage SCLC who forego PCI therapy may not be at higher risk of brain metastasis, and survival and cancer recurrence may not differ between patients who receive surgery or SBRT in the absence of PCI.