Sarcopenia is associated with worse overall survival in patients with locally advanced non-small cell lung cancer.

Methods and Materials: This study included all patients with Stage III non-small cell lung cancer treated with radical radiation and chemotherapy at a regional cancer centre using the Glans Look database between 2006 and 2012. Body composition analysis of planning or pre-treatment diagnostic CT scans was performed using Eclipse (Varian, Palo Alto, CA) per a previously validated and reported technique. Total skeletal muscle area was calculated on a single axial abdominal CT slice at the level of L3 vertebral body and adjusted for stature. Patients were classified as sarcopenic or nonsarcopenic using validated sex-specific cut-offs of L3 skeletal muscle index (52.4 cm²/m² for males and 38.5 cm²/m² for females). Kaplan-Meier survival estimates and Cox proportional-hazard models were used to determine the impact of sarcopenia on overall survival.

Results: A total of 106 patients (53% males, 47% females), with mean age 65 years (SD = 8.7) were analyzed. Mean BMI was 26.3 kg/m² (SD = 6.7 kg/m²). Only one patient was underweight (BMI < 18.5), 40% patients had normal weight and 60% of patients were either overweight or obese. Overall, 38.7% patients were sarcopenic. The prevalence of sarcopenia was 56% among patients with normal weight and 27% among overweight or obese patients. Sarcopenia was identified as an independent predictor of overall survival on multivariate analysis (hazard ratio 1.71; 95% CI 1.09 - 2.72, p = 0.019). Other significant predictors for worse overall survival included age over 65 years and absence of concurrent chemotherapy. Median survival in sarcopenic patients was 21 months (95% CI 13 - 28 months) compared with 31 months (95% CI 20 - 39 months) in nonsarcopenic patients.

Conclusions: Sarcopenia is independently associated with inferior survival in patients with locally advanced non-small cell lung cancers treated with chemoradiotherapy. It can be routinely assessed in clinical practice using radiation planning software. Sarcopenia as independent predictor for survival and toxicity outcomes should be included in larger prospective clinical studies.

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The Management of Small Cell Lung Cancer with Radiotherapy - A Pan-Canadian Survey of Radiation Oncologists

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Purpose: The management of small cell lung cancer (SCLC) with radiotherapy (RT) is variable, with many treatment regimens described in the literature. We created a survey to assess patterns of practice and clinical decision making in the management of SCLC by Canadian radiation oncologists (ROs).

Methods and Materials: A 35-item survey was e-mailed to Canadian ROs. Questions investigated the role of RT, dose/timing of RT, target delineation, and use of prophylactic cranial irradiation (PCI) in limited stage (LS) and extensive stage (ES) SCLC.

Results: Fifty-two eligible ROs responded. For LS-SCLC, staging (10%) and simulation/dosimetric (96%) CT imaging were key determinants of RT suitability. The two most common dose/fractionation schedules were 40-45 Gy/15 once daily (QD) (40%) and 45 Gy/30 twice daily (33%). Elective nodal irradiation was performed by 31% of ROs. Preferred management of clinical T1a/ZN0 SCLC favored primary chemoradiotherapy (64%). For ES-SCLC, consolidative thoracic RT was frequently offered (88%), with a preferred dose/fractionation of 30 Gy/10 QD (70%). Twenty-three ROs (44%) would not offer extrathoracic consolidative RT. After response to initial treatment, PCI was generally offered in both LS- (100%) and ES- (98%) SCLC. Performance status, baseline cognition, and pre-PCI brain imaging were important clinical factors assessed prior to offering PCI.

Conclusions: There are both variations and alignment in practice in the management of SCLC by Canadian ROs. Future clinical trials and national treatment guidelines may reduce variability in treating early-stage disease, optimizing dose/targeting in LS-SCLC, and defining suitability for both PCI and consolidative RT.

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Prophylactic Cranial Irradiation: Does Age Matter?

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Purpose: Prophylactic cranial irradiation (PCI) has been shown to provide a survival benefit and decrease occurrence of brain metastases in patients with small cell lung cancer (SCLC).