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Real world outcomes in extensive stage small cell lung cancer (ES-SCLC) treated with consolidative thoracic radiation (cTRT) and chemoimmunotherapy (CIT): A population level study.

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Background: Despite recent survival improvements from the combination of immune checkpoint inhibitors (ICI) with chemotherapy for patients with ES-SCLC, outcomes remain limited for the majority of patients. Addition of cTRT may elicit a synergistic response and contribute to improved disease control and survival, but there is limited data supporting routine use from either the trial or real world contexts. This study aims to investigate the safety and time-to-event outcomes of patients treated with CIT and cTRT. **Methods:** Demographic, clinical, treatment and outcome details were extracted from the Glans-Look Lung Cancer Research Database, a province-wide real-world outcomes registry of patients treated in routine practice. A population-level cohort of ES-SCLC patients receiving CIT and cTRT between 2019 and 2023 were identified. **Results:** 30 patients were identified. Median age was 68y. At CIT initiation; 63% had ECOG performance status ≤ 1, 17% had brain metastases; 20% received prophylactic cranial irradiation. CIT was comprised of platinum-etoposide and ICI: durvalumab (67%) or atezolizumab (33%), followed by maintenance ICI (median 5.8 months). cTRT was administered a median 4.8 months after CIT initiation; n=13 (43%) received 30Gy/10, n=2 (7%) received dose escalation to 40-45Gy in 14-20 fractions, and n= 15 (50%) received 20Gy-25Gy over 5-10 fractions. Reasons for discontinuation of CIT were primarily to progressive disease (n=18, 75%); with n=16 patients receiving second line systemic treatment (94% chemotherapy, 6% durvalumab rechallenge), and n=1 receiving additional thoracic stereotactic ablative body radiation. Post-cTRT pneumonitis was recorded in n=3 (10%) of patients, ranging from (CTCAE v5.0 Grade 1-3 severity), requiring hospitalization + treatment break (n=1), ICI termination (n=1), or resolving without intervention (n=1). Time-to-event outcomes are presented in the table. Receiving durvalumab as opposed to atezolizumab did not impact either mPFS (10 vs. 12 months, log rank=0.4; HR: 1.3 [95% CI: 0.8 - 5.9], p=0.12) or OS (17 vs. 13.2 months, log rank p=0.87; HR: 2.2 [95% CI: 0.4 – 4.4], p=0.67). **Conclusions:** ES-SCLC treatment comprised of both CIT and cTRT appears feasible and effective in among real-world patients. Pneumonitis, a potential complication of combined ICI and thoracic radiation, was infrequently observed in this cohort. Use of cTRT in addition to CIT appears to numerically surpass the ~13-month mOS observed within clinical trials which used first-line CIT without additional cTRT for ES-SCLC.

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Event	Median Time (Months) [95% CI]
Overall Survival from CIT initiation (mOS)	17.0 [12.7 – 24.6]
Progression Free Survival from CIT initiation (mPFS)	11.5 [8.6 – 13.6]
Time to Thoracic Progression	13.6 [12.4 – not reached]
Time to Distant Progression	11.5 [8.6 – 15.6]