



Radiosurgery Tied to Longer Survival in Patients With Lung-Cancer Brain Metastases

NEW YORK (Reuters Health) - Upfront stereotactic radiosurgery (SRS) is associated with improved survival in patients with brain metastases from small-cell lung cancer (SCLC), compared with whole-brain radiation therapy (WBRT), according to a database study.

"Although the field of oncology has transitioned to first-line SRS for limited or solitary brain metastases for most histologies in the wake of multiple randomized trials showing good outcomes with SRS alone, SCLC patients have largely been excluded from these trials and WBRT remains the standard of care for this histology," said Dr. Chad G. Rusthoven of the University of Colorado Cancer Center, in Aurora.

"WBRT is known, however, to produce consistent and measurable negative effects on neurocognitive function and quality of life," he told Reuters Health by email.

Dr. Rusthoven's team used data from the National Cancer Database (NCDB) to characterize survival outcomes of more than 5,900 patients with brain metastases from SCLC, including 200 treated with SRS and 5,752 treated with WBRT.

The median survival was significantly longer in patients who received SRS (10.8 months) than in patients who received WBRT (7.1 months) ($P < 0.001$), the researchers report in *Lung Cancer*, online April 2.

SRS was associated with a 30.4% lower mortality risk compared with WBRT on multivariable analysis ($P < 0.001$).

Other factors associated with improved overall survival included female sex and black and Hispanic race/ethnicity, whereas age 65 years and older, higher comorbidity score and the presence of extracranial metastases were associated with worse overall survival.

On propensity-score analysis, SRS remained associated with significantly improved median overall survival (10.9 months vs. 7.6 months), with a 31.3% lower risk of mortality ($P < 0.001$).

Most SRS patients (82.9%) were managed with single fraction radiosurgery; the rest received fractionated SRS in two to five fractions.

"The findings of this contemporary NCDB study are meaningful because they suggest that overall survival with first-line SRS is comparable with (or perhaps even better than) survival with WBRT in the United States," Dr. Rusthoven said. "However, due to the limitations of this registry dataset, we were not able to control for several important confounders, including the extent and number of brain

metastases, total burden of extracranial disease, and performance status. Consequently, this data cannot be used to assert that survival would be better with a strategy of SRS alone."

"The results do suggest, however, that there may be a subset of SCLC patients who can be safely and effectively managed with SRS alone and that further study to define this patient population is warranted," he said.

"We hope that this analysis will encourage other investigators to ask questions about the potential role of SRS for carefully selected patients with SCLC, and we believe that the importance of strategies designed to limit the neurocognitive and quality-of-life effects of WBRT and PCI (prophylactic cranial irradiation) are likely to gain increasing importance with improvements in systemic therapy and prognosis," Dr. Rusthoven added.

Dr. Denise Bernhardt of University Hospital Heidelberg, in Germany, who recently reported outcome and prognostic factors with single brain metastases from SCLC, told Reuters Health by email, "Based on these results, prospective clinical trials regarding the effect of cranial irradiation and locally ablative treatments in SCLC are needed, and the general paradigm of WBRT for all SCLC patients must be revised. Due to the retrospective nature of the available data, no general clinical recommendations can be made so far. Patients should be included in clinical trials."

"Similar to other tumors, we are faced with individual decision making in modern oncology, and the data presented suggests that patient selection, precision treatments, and personalized medicine might be on the horizon for SCLC patients," she said. "Currently, we do not have any promising systemic targeting drug for those patients, and the main survival benefits from the last decades come from improvements in radiotherapy technique."

Dr. Bernhardt, who was not involved in the new study, added, "The available data suggest that SCLC patients with a limited number of lesions, synchronous brain metastases, absence of extracranial metastases/stable disease, and good performance status might be candidates for SRS."