Use of Stereotactic Radiosurgery for Brain Metastases From Non-Small Cell Lung Cancer in the United States.

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Abstract

PURPOSE: The indications for treatment of brain metastases from non-small cell lung cancer (NSCLC) with stereotactic radiosurgery (SRS) remain controversial. We studied patterns, predictors, and cost of SRS use in elderly patients with NSCLC.

METHODS AND MATERIALS: Using the Surveillance, Epidemiology, and End Results-Medicare (SEER-Medicare) database, we identified patients with NSCLC who were diagnosed with brain metastases between 2000 and 2007. Our cohort included patients treated with radiation therapy and not surgical resection as initial treatment for brain metastases.

RESULTS: We identified 7684 patients treated with radiation therapy within 2 months after brain metastases diagnosis, of whom 469 (6.1%) cases had billing codes for SRS. Annual SRS use increased from 3.0% in 2000 to 8.2% in 2005 and varied from 3.4% to 12.5% by specific SEER registry site. After controlling for clinical and sociodemographic characteristics, we found SRS use was significantly associated with increasing year of diagnosis, specific SEER registry, higher socioeconomic status, admission to a teaching hospital, no history of participation in low-income state buy-in programs (a proxy for Medicaid eligibility), no extracranial metastases, and longer intervals from NSCLC diagnosis. The average cost per patient associated with radiation therapy was 2.19 times greater for those who received SRS than for those who did not.

CONCLUSIONS: The use of SRS in patients with metastatic NSCLC increased almost 3-fold from 2000 to 2005. In addition, we found significant variations in SRS use across SEER registries and socioeconomic quartiles. National practice patterns in this study suggested both a lack of consensus and an overall limited use of the approach among elderly patients before 2008.

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