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Evidence-Based Practice of Stereotactic Radiosurgery: Outcomes from an Educational Course for Neurosurgery and Radiation Oncology Residents

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Objectives: As the field of brain and spine stereotactic radiosurgery (SRS) grows, so too does the need for a comprehensive, evidence base to guide safe and effective treatment. However, it is unclear to what degree residents in radiation oncology and neurosurgery feel properly equipped to use SRS as a treatment technique upon graduation. In this study, we assess the perceptions and comfort level reported by neurosurgery and radiation oncology residents concerning the evidence-based practice of SRS.

Methods: A Continuing Medical Education (CME) course was held at Weill Cornell Medical College in New York, NY and supported by the Radiosurgery Society to provide peer-reviewed updates regarding indications and treatment of patients with intracranial and spinal SRS. Presentations were given by neurosurgery and radiation oncology residents and fellows from institutions around the country with mentorship by senior faculty course directors. To gauge perceptions regarding SRS, including current familiarity with and anticipated use of the technique, attendees were administered an online survey. Responses were analyzed before and after the course using the Fisher exact test in R statistical software.

Results: Comparing survey responses before and after the course, participants reported the greatest knowledge improvements regarding the availability of data registries ($p = 0.000927$) and clinical trials ($p = 0.02551$). Furthermore, 82% of all ($N = 17$) radiation oncology and neurosurgery residents responding to the survey either agreed or strongly agreed that a brain and spine SRS rotation would be beneficial in their training. However, only 47% agreed or strongly agreed that a brain and spine SRS program was currently part of their training. Additionally, knowledge gains in SRS indications ($p = 0.08441$) and ability to seek collaboration with colleagues ($p = 0.08441$) showed notable trends.

Conclusions: There are clear knowledge gaps shared by residents and fellows concerning the use of SRS. Specifically, knowledge regarding the availability of SRS data registries, SRS indications, and the landscape of clinical trials offer potential areas for increased educational

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focus. Furthermore, the gap between reported enthusiasm for increased formal training in SRS and the current availability of such training at medical institutions must be addressed. Although this study reports on a limited sample size, the results highlight an important need for increased integration of SRS training within existing residency programs.