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Radiosurgery alone for 5 or more brain metastases: expert opinion survey. Clinical article.

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Abstract

OBJECT: Oligometastatic brain metastases may be treated with stereotactic radiosurgery (SRS) alone, but no consensus exists as to when SRS alone would be appropriate. A survey was conducted at 2 radiosurgery meetings to determine which factors SRS practitioners emphasize in recommending SRS alone, and what physician characteristics are associated with recommending SRS alone for ≥ 5 metastases.

METHODS: All physicians attending the 8th Biennial Congress and Exhibition of the International Stereotactic Radiosurgery Society in June 2007 and the 18th Annual Meeting of the Japanese Society of Stereotactic Radiosurgery in July 2009 were asked to complete a questionnaire ranking 14 clinical factors on a 5-point Likert-type scale (ranging from 1 = not important to 5 = very important) to determine how much each factor might influence a decision to recommend SRS alone for brain metastases. Results were condensed into a single dichotomous outcome variable of "influential" (4-5) versus "not influential" (1-3). Respondents were also asked to complete the statement: "In general, a reasonable number of brain metastases treatable by SRS alone would be, at most, ____." The characteristics of physicians willing to recommend SRS alone for ≥ 5 metastases were assessed. Chi-square was used for univariate analysis, and logistic regression for multivariate analysis.

RESULTS: The final study sample included 95 Gamma Knife and LINAC-using respondents (54% Gamma Knife users) in San Francisco and 54 in Sendai (48% Gamma Knife users). More than 70% at each meeting had ≥ 5 years experience with SRS. Sixty-five percent in San Francisco and 83% in Sendai treated ≥ 30 cases annually with SRS. The highest number of metastases considered reasonable to treat with SRS alone in both surveys was 50. In San Francisco, the mean and median numbers of metastases considered reasonable to treat with SRS alone were 6.7 and 5, while in Sendai they were 11 and 10. In the San Francisco sample, the clinical factors identified to be most influential in decision making were Karnofsky Performance Scale score (78%), presence/absence of mass effect (76%), and systemic disease control (63%). In Sendai, the most influential factors were the size of the metastases (78%), the Karnofsky Performance Scale score (70%), and metastasis location (68%). In San Francisco, 55% of respondents considered treating ≥ 5 metastases and 22% considered treating ≥ 10 metastases "reasonable." In Sendai, 83% of respondents considered treating ≥ 5 metastases and 57% considered treating ≥ 10 metastases "reasonable." In both groups, private practitioners, neurosurgeons, and Gamma Knife users were statistically significantly more likely to treat ≥ 5 metastases with SRS alone.

CONCLUSIONS: Although there is no clear consensus for how many metastases are reasonable to treat with SRS alone, more than half of the radiosurgeons at 2 international meetings were willing to extend the use of SRS as an initial treatment for ≥ 5 brain metastases. Given the substantial variation in clinicians' approaches to SRS use, further research is required to identify patient characteristics associated with optimal SRS outcomes.

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