



COMMENT ON “RADIOSURGERY OF BRAIN METASTASES WITH CYBERKNIFE® SYSTEM: ROLE OF IMAGE”

G. PARISI, T. CESCHIA, M. TROVÒ

Department of Radiation Oncology, Azienda Sanitaria Universitaria Integrata UD, Udine, Italy

Dear Editor,

We read with great interest the article “ Radiosurgery of brain metastases with Cyberknife system: role of image “ by Di Franco et al¹. In this paper they treated 163 patients with Cyberknife for brain metastases, an image-guided frameless robotic SRS/SRT. The authors were able to conclude that the image fusion used for the delineation of target and OARs provided accuracy and uniformity for contouring and planning, ensuring respect of constraints, reduced toxicity, improved quality of life and increased in local control. The authors also report, with a median follow-up of 9 months, an overall survival of 14.7 months for patients with breast cancer metastases, 10.3 months in melanoma/RCC e 7.66 months in lung cancer.

Brain metastases treatments represent a significant problem during their illness in cancer patients. However, from Di Franco’s work two considerations can be done. First of all, historically, treatment options for patients with brain metastases from solid tumors were limited to surgery and/or whole-brain radiotherapy (WBRT) supported by corticosteroids if indicated. Currently, radiosurgery is a possible highly precise option in multiple clinical scenarios for selected patients with good prognosis (expected survival 3 months or more), which goes from single brain metastasis, less than 3 to 4 cm, not resectable or incompletely resected, to multiple brain metastases². Secondly, MRI is crucial to determining the best course of patient’s management. Identifying the number, location and size of brain

metastases accurately is important to determine which interventions, if any, are appropriate for a patient³. What does Di Franco’s paper add to the present knowledge treatment options for patients with brain metastases?

The authors, presenting a good case series, underline the validity of increasingly refined and complex treatments. Despite the progressive increase in reports in the scientific literature, on the use of radiosurgery techniques, the counterpart of these techniques is represented by cost and accessibility for patients. In order to avoid excessive economic impact of treatment and ensure greater accessibility for patients, experience of the feasibility of safely treating numerous brain metastases with linear accelerators is available in literature³⁻⁶. This results in lower treatment costs and higher availability of equipment, which are crucial points that need to be considered. SRS is an effective treatment option and has become an important alternative to surgery for brain metastases. In many instances, it has replaced surgery as the standard treatment of choice. Variable tools and technologies are available for different clinical indications and programs. The identification of exact selection criteria for patients who can benefit from this treatment options is a cornerstone to rationalize in terms of the costs-effectiveness and appropriateness of these treatments, and it represents the main challenge for the future.

CONFLICT OF INTERESTS:

The Authors declare that they have no conflict of interests.



REFERENCES

1. DI FRANCO R, BORZILLO V, FALIVENE S, GIUGLIANO FM, CAMMAROTA F, AMETRANO G, MUTO M, RAVO V, ROMANO F, ROSSETTI S, CAVALIERE C, D'ANIELLO C, PISCITELLI R, IOVANE G, BERRETTA M, FACCHINI G, MUTO P. Radiosurgery of brain metastases with CyberKnife® system: role of image. *WCRJ* 2017; 4: e987.
2. TSAO MN, RADES D, WIRTH A, LO SS, DANIELSON BL, GASPARI LE, SPERDUTO PW, VOGELBAUM MA, RADAWSKI JD, WANG JZ, GILLIN MT, MOHIDEEN N, HAHN CA, CHANG EL. Radiotherapeutic and surgical management for newly diagnosed brain metastasis(es): an American Society for Radiation Oncology evidence-based guideline. *Pract Radiat Oncol* 2012; 2: 210-225.
3. ZAKARIA R, DAS K, BHOJAK M, RADON M, WALKER C, JENKINSON MD. The role of magnetic resonance imaging in the management of brain metastases: diagnosis to prognosis. *Cancer Imaging* 2014; 14: 8.
4. NATH SK, LAWSON JD, SIMPSON DR, SPEK LV, WANG JZ, ALKSNE JF, CIIACCI J, MUNDT AJ, MURPHY KT. Single-isocenter frameless intensity-modulated stereotactic radiosurgery for simultaneous treatment of multiple brain metastases: clinical experience. *Int J Rad Onc Biol Phys* 2010; 78: 91-97.
5. HUANG Y, CHIN K, ROBBINS JR, KIM J, LI H, AMRO H, CHETTY IJ, GORDON J, RYU S. Radiosurgery of multiple brain metastases with single-isocenter dynamic conformal arcs (SIDCA). *Radiother Oncol* 2014; 112: 128-132.
6. THOMAS EM, POPPLE RA, WU X, CLARK GM, MARKERT JM, GUTHRIE BL, YUAN Y, DOBELBOWER MC, SPENCER SA, FIVEASH JB. Comparison of plan quality and delivery time between volumetric arc therapy (RapidArc) and Gamma Knife radiosurgery for multiple cranial metastases. *Neurosurgery* 2014; 75: 409-418.