CLINICAL PAPER /

BRAIN TUMOR

Future directions in treatment of brain metastases.

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ABSTRACT

BACKGROUND:

Brain metastases affect up to 30% of patients with cancer. Management of brain metastases continues to evolve with ever increasing focus on cognitive preservation and quality of life. This manuscript reviews current state of brain metastases management and discusses various treatment controversies with focus on future clinical trials. Stereotactic radiosurgery (SRS) and whole-brain radiotherapy (WBRT) are discussed in context of multiple (4+ brain metastases) as well as new approaches combining radiation and targeted agents. A brief discussion of modified WBRT approaches, including hippocampal-avoidance WBRT (HA-WBRT) is included as well as a section on recently presented results of Radiation Therapy Oncology Group (RTOG) 0614, a randomized, double-blind, placebo-controlled trial of menantine for prevention of neurocognitive injury after WBRT.

METHODS:

A search of selected studies relevant to management of brain metastases was performed in PubMed as well as in various published meeting abstracts. This data was collated and analyzed in context of contemporary management and future clinical trial plans. This data is presented in tabular form and discussed extensively in the text.

RESULTS:

The published data demonstrate continued evolution of clinical trials and management strategies designed to minimize and/or prevent cognitive decline following radiation therapy management of brain metastases. Hippocampal avoidance whole-brain radiation therapy (HA-WBRT) and radiosurgery treatments for multiple brain metastases are discussed along with preliminary results of RTOG 0614, a trial of memantine therapy to prevent cognitive decline following WBRT. Trial results appear to support the use of memantine for prevention of cognitive decline.

CONCLUSION

Different management strategies for multiple brain metastases (>4 brain metastases) are currently being evaluated in prospective clinical trials to minimize the likelihood of cognitive decline following WBRT.