Drug: none
Condition: brain metastases

Whole Brain Radiotherapy Induces Decline in Cognitive Function in Patients with Cerebral Metastases

By Brandon M. May

CHICAGO – May 2, 2016 – The cognitive effects of whole brain radiotherapy (WBRT) have yet to be widely explored. An abstract presented at the 84th Annual Scientific Meeting of the American Academy of Neurological Surgeons (AANS) in Chicago, Illinois, shows that WBRT used for tumor control in the brain may promote a decline in immediate and delayed memory and verbal fluency as well as quality-of-life measures post-surgery.

"We did see a significant deterioration in long-term survivors at 12 months…and the most significantly affected was cognitive function," lead study author Anthony L. Asher, MD, explains. "The decline in cognitive function is more frequent in WBRT, specifically to immediate and delayed memory, recall, and executive function." Dr. Anthony Asher further states, "For patients with newly diagnosed oligometastases, we recommend additional treatment with SRS alone and close monitoring to better preserve cognitive function and quality of life."

The goal of this study was to assess the value of WBRT in the management of cerebral metastases. In the United States alone, over 400,000 patients a year are diagnosed with brain metastases. Patients with brain tumors are often prescribed WBRT for management of brain metastases; in fact, over 200,000 patients in the United States receive WBRT.

There are currently no large randomized trials that show simultaneously evaluate the impact of WBRT on quality of life (QoL) and neurocognitive function.

In this presented study, one-three brain metastases patients (n = 213) were randomized to radiosurgery alone or radiosurgery + WBRT. Each patient was assigned cognitive assessments before and after treatment to evaluate potential cognitive decline. Cognitive deterioration, measured by a decline <1 standard deviation from baseline in one cognitive assessment at 3 months, was the primary endpoint for this study.

Results showed patients receiving WBRT experienced progressive deterioration in immediate and delayed memory as well as verbal fluency. At 3 months with WBRT, there was also a greater degradation in QoL measures, specifically for functional well-being and overall QoL. WBRT showed a greater control in intracranial tumor at 3 months vs radiosurgery alone (93.7% vs 75.3%, respectively).

The median overall survival (OS) was 7.4 months for radiosurgery + WBRT vs 10.4 for radiosurgery alone. Researchers concluded that cognitive deterioration is more frequent following combined radiosurgery and WBRT at 3 months, yet no difference is found between QoL and functional independence.

[*Presentation title: Cognitive Decline with Whole Brain Radiotherapy after Radiosurgery for Metastases.*]