Stereotactic radiosurgery preferred method of treating cancer patients with brain metastases

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Cancer patients who receive stereotactic radiosurgery (SRS) and whole brain radiation therapy (WBRT) for the treatment of metastatic brain tumors have more than twice the risk of developing learning and memory problems than those treated with SRS alone, according to researchers at The University of Texas M. D. Anderson Cancer Center.

The findings of the phase III randomized trial are published in the October 5, 2009 online edition of the *Lancet Oncology*. Led by Eric L. Chang, M.D., associate professor in the Department of Radiation Oncology at M. D. Anderson, the study supports the use of SRS alone combined with close monitoring as the initial treatment strategy for cancer patients newly diagnosed with one to three brain metastases.

"Though both approaches are equally acceptable and practiced in the United States, these findings allow radiation oncologists to recommend the optimal treatment for this group of patients," Chang said. "This method is consistent with the trend of personalized medicine and tailoring therapies, rather than applying the "one size fits all" approach of giving WBRT to all patients with brain metastases."

The American Cancer Society estimates approximately 170,000 cancer patients will experience metastases to the brain from common primary cancers such as breast, colorectal, kidney and lung in 2009. More than 80,000 of those patients will have between one and three brain

metastases.

Over the last decade, SRS, which uses high-doses of targeted x-rays, has gained acceptance as an initial treatment for tumors that have spread to the brain. SRS is also commonly used in combination with WBRT, radiation of the entire brain, to treat tumors that are visible and those that may not be detected by diagnostic imaging.

The seven year study observed 58 patients presenting with one to three newly diagnosed brain metastases who were randomized to receive SRS followed by WBRT or SRS alone. Approximately four months after treatment, 52 percent of patients who received WBRT experienced a decline in learning and memory function compared with 24 percent in those patients who received SRS alone.

An independent data monitoring committee halted the trial after interim results showed the high statistical probability (96.4 percent) that patients randomized to SRS alone would continue to perform better.

M. D. Anderson researchers measured participants' neurocognitive function using a short battery of neuropsychological tests, with the primary endpoint being memory function as tested by the Hopkins Verbal Learning Test Revised. Patient performance that decreased more than a predefined criteria relative to their baseline were considered to exhibit a marked decline.

When researchers looked at progression-free survival, 73 percent patients who received SRS plus WBRT were free from recurrence at one year, compared with 27 percent of patients who received SRS. "Despite this difference in recurrence rates, we would still advise against WBRT because the risks of learning dysfunction outweigh the benefits of freedom from progression," said Chang. "With close monitoring, salvage resections or additional radiation can be performed as necessary and

patients who receive SRS alone will fare better with their quality of life intact."

Although a secondary endpoint of the study, researchers found that the median one-year survival was higher for the SRS alone group than for patients assigned to SRS plus WBRT (15.2 vs. 5.7 months). Based on exploratory analysis, Chang and his team cite a possible explanation for this difference could be attributed to patients who received SRS alone were able to receive a median of two more chemotherapy cycles and get it one month sooner than those who received SRS plus WBRT.

"This treatment decision carries a lot of strong emotions on behalf of the patient and their physicians. In our practice at M. D. Anderson we've seen a clear preference toward SRS alone," Chang said. "Now we have the data to support this choice." Based on these results, future research studies are planned to determine if there are expanded indications of using SRS alone for patients with more than three brain metastases.

Source: University of Texas M. D. Anderson Cancer Center (news : web)