Medical Xpress

Whole-brain radiotherapy after surgery or radiosurgery not recommended for brain metastases

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Berlin, Germany: Whole-brain radiotherapy should not be given routinely to all patients whose cancer has spread to the brain, say researchers who found that using it after surgery or radiosurgery in patients with a limited number of brain metastases and stable cancer in the rest of the body did not extend lives or help patients remain functionally independent for longer.

In the largest study to date on the issue, scientists reported at Europe's largest cancer congress, ECCO 15 - ESMO 34, in Berlin today (Tuesday 22 September) that while the technique did extend the length of time before the cancer got worse and reduced the risk of brain-related deaths, it failed to prolong overall survival or the length of time that patients were able to remain independent in critical functions such as walking, thinking and eating.

Brain metastasis, or spread of cancer to the brain, occurs in 20%-40% of cancer patients and is an important contributor to cancer deaths. Average survival among patients whose tumours have spread to the brain ranges between three months and one year. Treatment options are limited.

Whole-brain radiotherapy is the standard treatment in patients with a single brain metastasis that is not suitable for surgery or radiosurgery, in patients with multiple brain metastases and in those whose cancer is spreading elsewhere in the body.

"However, its use to prevent recurrence after conventional surgery or radiosurgery in patients with a limited number of brain metastases and stable cancer in the rest of the body is controversial. It can slow the spread of cancer in the brain but can damage cognitive functions, sometimes leading to dementia, in long surviving patients," said the leader of the international study, Dr Riccardo Soffietti, Professor of Neuro-Oncology at the University of Torino Medical School in Italy.

"Attitudes toward whole-brain radiotherapy are quite variable across cancer centres at the moment, but, overall, the tendency is to use it in cancers that respond well to radiotherapy, such as breast and lung cancer, and to avoid it in cancers that don't respond well to radiotherapy, such as melanoma, kidney and colon cancer," he said. "The benefits of this treatment have not been fully clarified and because the toxicity could be significant, we need to ensure that there are meaningful advantages to it before it can be widely adopted for this type of patient."

The phase III randomised trial involved 353 patients whose primary tumours were not growing but had spread to the brain, spawning a limited number of brain tumours, or metastases. They all got either surgery to cut the cancer out of the brain, or radiosurgery, a type of targeted radiotherapy performed instead of conventional surgery when it is either too dangerous to remove the tumour or the tumour is small enough to avoid surgery. Half got whole-brain radiotherapy after that, while the rest did not.

There was no statistically significant difference in the length of time that patients were able to function independently, with functionally independent survival lasting 9.5 months in the treatment group and 10 months in the group that got no whole-brain radiotherapy.

Similarly, there was no statistically significant difference in overall survival, with patients getting whole-brain radiotherapy living on average

10.7 months and those not getting it living an average of 10.9 months.

However, the treatment did carry a lower chance of cancer spreading within the brain. Within two years, it had progressed in 54.2% of the patients getting no whole-brain radiotherapy, but only in 31.2% of those getting the treatment. Brain tumour progression killed 25% of the patients in the whole-brain radiotherapy group, compared with 43% in the other group.

Moreover, the study found that the treatment slowed progression of cancer by five weeks, with the treatment group lasting 4.6 months before the disease got worse and the others lasting 3.4 months.

"Although this treatment gives a modest advantage in progression-free survival, it cannot be considered as the standard treatment after surgery or radiosurgery for all patients with brain metastases because it does not prolong the period of functional independence or extend overall survival, which are the key outcomes," Dr Soffietti said. "We are still analysing whether or not the treatment improved quality of life in this study, but we also now need new studies to determine whether it could help some subgroups of patients, such as for instance those with breast cancer."

In the meantime, Dr Soffietti said, doctors must also take into account the fact that recent studies indicate that alternatives may be possible, such as localised radiation after the brain tumour has been cut out or new radiation techniques that spare the areas of the brain involved in cognitive functions that could be damaged by whole-brain radiotherapy.

Source: ECCO-the European CanCer Organisation