

Radiotherapy and chemotherapy give same quality of life

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Brain tumour patients that have been treated with radiation have as good quality of life as patients that have undergone chemotherapy. This is revealed in an international study published in *The Lancet Oncology*, to which Uppsala University researchers have contributed.

"Before this study, we thought that chemotherapy meant fewer serious cognitive side-effects than radiotherapy, and that [patients](#) treated with chemotherapy would have a higher quality of life than those treated with radiation. We thought radiation dealt a harder blow to the brain's cognitive functions compared to chemotherapy. But the results show that the cognitive ability and quality of life didn't differ between the two groups. This was a very unexpected outcome", says Anja Smits, Professor of Neurology at Uppsala University.

Anja Smit and her research team have together with researchers at several other Swedish universities contributed to the large international study. They investigated how patients with slow-growing brain tumours, so called low-grade glioma, rate their quality of life after chemotherapy with temozolomide (TMZ) in comparison to patients who had received radiotherapy.

The study is unique in that it is the first controlled randomised study of health-related quality of life (HRQL) in patients with low-grade glioma.

Low-grade glioma grow from the brain's supportive cells, also called glial cells. Patients diagnosed with low-grade glioma are generally in their

30s or 40s and previously healthy. Glioma cells' typical growth pattern in the brain, without well-defined boundaries, make it difficult to surgically remove all parts of a tumour. Often they appear in sensitive parts of the brain, such as those handling language, movement or the sensory system.

Despite slow tumour growth in the early stages of the disease, nearly all low-grade glioma transition into high-grade glioma, the most aggressive form of glioma, which are fatal.

There is a constant debate in healthcare of whether radiation or chemotherapy is the most effective treatment after surgery, and which point in time is the best. For patients with low-grade brain tumours, who are generally well for several years, this is a difficult balancing act.

The purpose of the study was to compare how temozolomide affects patients' survival and quality of life compared to radiation therapy.

"The conclusion could be that radiation therapy will still be the primary choice. But it is important to know that this study has only looked at the three years following initial treatment. It is known that radiation therapy can give side-effects later on, so we will continue to check up on our patients in a longer study over ten years. But the results could also mean that [radiation therapy](#) today doesn't cause side-effects such as memory loss, difficulties concentrating and tiredness to the extent it used to. That it has become more gentle than before", says Anja Smits.

A total of 477 patients in 19 countries, including at the university hospitals in Uppsala, Umeå, Linköping and Lund, have taken part in the study which was led by the European Organisation for Research and Treatment of Cancer (EORTC). The patients were randomly selected for either radiotherapy or [chemotherapy](#). They filled out two standardised surveys.

The first was a generic survey about quality of life. The second was more specific for patients with [brain tumours](#) which they filled out before their treatment, and which was followed up on every three months for three years after the initial treatment. They were given questions about how they felt and how they would rate tiredness, difficulties with memory and concentration, and if they had symptoms such as walking difficulties, urinary incontinence or depression.

More information: Jaap C Reijneveld et al. Health-related quality of life in patients with high-risk low-grade glioma (EORTC 22033-26033): a randomised, open-label, phase 3 intergroup study, *The Lancet Oncology* (2016). [DOI: 10.1016/S1470-2045\(16\)30305-9](https://doi.org/10.1016/S1470-2045(16)30305-9)

Brigitta G Baumert et al. Temozolomide chemotherapy versus radiotherapy in high-risk low-grade glioma (EORTC 22033-26033): a randomised, open-label, phase 3 intergroup study, *The Lancet Oncology* (2016). [DOI: 10.1016/S1470-2045\(16\)30313-8](https://doi.org/10.1016/S1470-2045(16)30313-8)

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