

Elderly less likely to benefit from simultaneous radio- and chemotherapy for lung cancer

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An analysis of elderly patients treated in a phase II trial of radiotherapy combined with chemotherapy in non-small cell lung cancer (NSCLC) has shown that they were less likely to benefit than younger patients if the two treatments were given at the same time.

Previous research has shown that for NSCLC patients with locally advanced disease (disease that has spread to the lymph nodes), radiotherapy given simultaneously with chemotherapy (concurrent chemo-radiotherapy) gives the best chance of survival, compared to giving chemotherapy followed by radiotherapy (sequential chemo-radiotherapy). However, it is a more intensive [treatment](#) and can lead to more and severe side-effects. Until now, it was unknown whether concurrent chemo-radiotherapy also improved survival in patients aged 75 or older, and how they would tolerate the treatment.

The trial, which is to be presented at the ESTRO 37 conference tomorrow (Saturday), investigated intensity-modulated radiation therapy (IMRT) - a sophisticated form of radiotherapy that precisely targets the cancer and adapts the beam's shape to that of the tumour, avoiding or reducing exposure of nearby healthy tissues - combined with chemotherapy. The radiation dose was personalised to each patient, so that the maximum possible total dose was delivered to the tumour, while sparing nearby organs that could be harmed by radiation. This is known as the isotoxic principle, and the researchers wanted to see if it was

possible to give higher tumour doses without increasing the risk of side effects, and if it improved survival.

A total of 300 patients took part in the trial at the MAASTRO Clinic (Maastricht, The Netherlands) between May 2009 and April 2012, of whom 76 (25.3%) were aged 75 or older. The patients received IMRT alone, concurrent chemo-radiotherapy, or sequential chemo-radiotherapy. The researchers reviewed the patients' overall survival in October 2017.

Dr Judith van Loon, a radiation oncologist at the MAASTRO Clinic, said: "We found that elderly patients who were treated with concurrent chemo-radiotherapy had a worse survival than younger patients. They also did worse than the elderly patients treated with sequential chemo-radiotherapy or radiotherapy alone. Furthermore, it was not possible to increase the dose to the tumour without increasing the chance of side effects."

Among patients aged 75 or older, 32% received concurrent chemo-radiotherapy, 29% sequential chemo-radiotherapy and 39% radiotherapy alone. The total dose of radiation that could be delivered in the concurrent chemo-radiotherapy group was an average of 66.2 Gy, and in the sequential chemo-radiotherapy group it was an average of 66.7 Gy.

Death from any cause (overall survival) was significantly worse in the elderly patients receiving concurrent chemo-radiotherapy, even though the majority of them (96%) were assessed at the beginning of the study as having a World Health Organisation (WHO) performance score of 1 or less, meaning they were fully active and able to carry on normal life.

Compared with younger patients, the average overall survival was 15.5 versus 19.8 months, and after five years 13.2% elderly patients were alive compared to 24.1% of younger patients. While overall survival was

worse for the elderly patients treated with concurrent chemo-radiotherapy, the survival was similar to younger patients among the elderly who were treated with sequential chemo-radiotherapy or radiotherapy alone. Overall, there was no difference in adverse effects between elderly and younger patients.

"These results indicate that the standard treatment for [lung cancer patients](#) may not result in the best outcomes for elderly patients," said Dr van Loon. "Most importantly, they show that selecting elderly patients for concurrent chemo-radiotherapy on the basis of their performance score is not sufficient. Physicians need to take care when deciding whether or not to administer concurrent chemo-radiotherapy outside the conditions of a study.

"These findings underscore the need for prospective studies that incorporate geriatric assessment in this understudied group of elderly cancer patients, as this enables us to identify predictive factors for treatment outcome. Also, we should look not only at the chance of cure but also quality of life and patient-reported outcome measures. This can help physicians to select the best treatment for individual patients.

"A multicentre trial is currently investigating the value of a geriatric assessment in [elderly patients](#) with locally advanced lung cancer. Within this trial, patients that are assessed as fit enough to be treated with chemo-radiotherapy are randomly assigned to concurrent or sequential chemo-radiotherapy. Results from this trial are expected in 2022."

President of ESTRO, Professor Yolande Lievens, head of the department of radiation oncology at Ghent University Hospital, Belgium, said: "This analysis demonstrates that one size does not fit all when it comes to treating cancer patients of different ages. Elderly people, even when they are otherwise fit and healthy, respond differently to treatments than their younger counterparts. More research needs to be

performed to define the most effective treatment strategies for these [patients](#) that do not impact on their quality of life without improving survival. We look forward to the results from the multi-centre trial that is investigating a more personalised and tailored approach and assesses the value of a more intensive treatment strategy in the elderly patient population with non-small cell [lung cancer](#)."

Provided by European Society for Radiotherapy and Oncology

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