Research demonstrates potential method to better control lung cancer using radiotherapy

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Manchester scientists are working out how to safely increase the radiotherapy dose given to lung cancer patients – potentially offering improved local control and survival.

Standard treatment for locally advanced non-small cell lung cancer is a combination of radiotherapy and chemotherapy. Traditionally this is planned in a one-size-fits-all manner but the radiation dose may not always be enough to stop tumour growth.

The potential to increase the radiation dose to the cancerous tissue varies between patients and depends on the size and location of the tumour in relation to sensitive organs such as the spinal cord and lungs. Now researchers at The University of Manchester and The Christie NHS Foundation Trust – both part of the Manchester Cancer Research Centre – have looked at ways to personalise and increase the dose to the tumour while minimising the effect on healthy tissue.

Dr Corinne Faivre-Finn, researcher at The University of Manchester and Honorary Consultant at The Christie, who led the study, said: "Current standard options for the treatment of non-small cell lung cancer are associated with poor survival. We wanted to see if more advanced methods of planning and delivering radiotherapy treatment could potentially allow an increase in radiation dose."

The group used data from 20 lung cancer patients to investigate whether a newer radiotherapy technique – intensity modulated radiotherapy

(IMRT) – could potentially be used to increase the radiation dose to lung tumours, without harming healthy organs. Their treatment planning methods ensured a safe radiation dose was delivered to the surrounding organs at risk.

In an article recently published in the journal *Clinical Oncology*, they show that IMRT allowed an increase in radiation dose for non-small cell lung cancer.

"Our exploratory study suggests that using IMRT can allow radiation dose to be increased: calculations indicate that this could yield a 10% improvement in tumour control. We are starting a new clinical trial, funded by Cancer Research UK, investigating the delivery of this personalised IMRT treatment in patients with non-small cell lung cancer. We hope to demonstrate that the increase dose delivered to the tumour will lead to improved survival " added Dr Faivre-Finn.

More information: "An Isotoxic Planning Comparison Study for Stage II-III Non-small Cell Lung Cancer: Is Intensity-modulated Radiotherapy the Answer?" Warren et al. Clin Oncol (R Coll Radiol). 2014 May 1. pii: S0936-6555(14)00094-6. DOI: 10.1016/j.clon.2014.03.011.

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