Imaging method has potential to stratify head and neck cancer patients

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Manchester researchers have identified a potential new way to predict which patients with head and neck cancer may benefit most from chemotherapy.

These patients commonly receive pre-treatment induction chemotherapy, before either surgery or radiotherapy, to reduce the risk of disease spread. However the effectiveness of such treatment is reduced in tumours with poor blood flow.

Previous studies have shown that CT scans can be used to assess tumour blood flow. Now researchers at The University of Manchester and The Christie NHS Foundation Trust – both part of the Manchester Cancer Research Centre – have explored the use of MRI scans in predicting which patients would benefit from induction chemotherapy.

Professor Catharine West, who led the study, said: "It's also important to identify those patients who are unlikely to respond to induction therapy so that we can skip ahead in the treatment pathway and offer them potentially more effective treatments and hopefully improve their outcome."

The team used an imaging technique known as dynamic contrast-enhanced MRI (DCE-MRI), where a contrast agent tracer is injected into a patient's vein whilst they have a series of MRI scans taken. This allows scientists and doctors to investigate the blood flow and vessel structure of a patient's tumour.

They found that the blood flow of a patient's tumour before they received induction therapy could predict response to treatment. In a paper recently published in the journal Oral Oncology, the group report that those with high tumour blood flow were more likely to respond.

Jonathan Bernstein, a co-author on the paper, said: "Delivery and effectiveness of chemotherapy appears to be better in tumours with higher blood flow. However, amongst those patients with lower measured tumour blood flow, more work is needed to determine those who will and won't respond."

  More information: "Tumor plasma flow determined by dynamic contrast-enhanced MRI predicts response to induction chemotherapy in head and neck cancer." *Oral Oncol.* 2015 May;51(5):508-13. DOI: 10.1016/j.oraloncology.2015.01.013

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