



DNA test could be key to targetting treatments for head and neck cancer

Liverpool, UK - 5 October 2009: Scientists at the University of Liverpool have found that a DNA test, which reveals the level of activity of a virus linked to the cause of tonsil, tongue and soft palate cancer, may help medics predict which patients will respond well to particular types of treatments.

It is estimated that more than 7,000 people are diagnosed with head and neck cancer each year in the UK and approximately 3,500 cases result in death. These cancers include tumours of the mouth, lips, throat and voice-box, and some have been linked to the sexually transmitted infection, HPV-16. Scientists at Liverpool analysed the DNA of more than 90 cancerous tissue samples to look for genes that indicated infection.

The team found that nearly two thirds of tonsil tumour samples showed evidence of the HPV-16 gene. It is thought that chemical alterations in the virus's DNA trigger the production of proteins that can alter the rate at which cells grow and repair. This strongly increases the possibility of subsequent cancer development. Recent studies have found, however, that patients who have the HPV infection when they are diagnosed with cancer, respond better to chemotherapy or radiation therapy than those that do not have the infection. The work will be presented at the National Cancer Research Institute's (NCRI) Cancer Conference in Birmingham today.

Mr Richard Shaw, from the School of Cancer Studies, explains: "Recent evidence demonstrates the possible involvement of HPV in the development of tonsil cancer, particularly in non-smokers. Interestingly, the treatment efficiency of chemotherapy and radiation, seems to differ between HPV positive and negative cases. We also need to find out why only a small percentage of people with this common infection develop this cancer. Our study, however, gives us a new lead towards a risk marker.

"It is thought that HPV interacts in the cell with genes controlling the chemical modification of DNA, which affects gene expression and tumour behaviour. Our study shows that HPV may be a trigger of tonsil cancer, independent of the known common causes, such as smoking or drinking. The work also suggests that a DNA test to determine the activity of HPV, could be used to identify the most effective treatment for each individual patient.

"Liverpool has the largest centralised head and neck oncology practice in the UK and our data show a doubling in the rate of non-drinkers and non-smokers presenting with tonsil cancer. As head and neck cancer is one of the cornerstones of the new CR-UK Cancer Centre in Liverpool, we are pleased to be making real progress in this area of research."

Researchers are now working to develop a clinical trial for a therapeutic HPV vaccine in head and neck cancer.

The study, supported by the Royal College of Surgeons, will be presented at the NCRI Cancer Conference on Monday, 5 October.

- 1. The Liverpool Cancer Research UK Centre focuses on understanding how cancers start and behave, how to develop better treatments with fewer side effects and how to tackle cancer in low-income communities where survival is lowest. As one of the first CR-UK Centres, Liverpool will set the pace for national and international progress in cancer of the pancreas, head and neck and blood. It will also concentrate on pioneering the latest techniques in surgery, radiotherapy and the treatment of children's cancers.**
- 2. The School of Cancer Studies brings together the considerable cancer research activities of the Divisions of Haematology, Pathology and Surgery & Oncology. The School forms a major part of the recently formed Liverpool CR-UK Cancer Centre.**
- 3. The National Cancer Research Institute (NCRI) was established in April 2001. It is a UK-wide partnership between the government, charity and industry which promotes co-operation in cancer research among the 21 member organisations for the benefit of patients, the public and the scientific community. NCRI Cancer Conference is the UK's major forum for showcasing the best British and international cancer research.**
- 4. The University of Liverpool is a member of the Russell Group of leading research-intensive institutions in the UK. It attracts collaborative and contract research commissions from a wide range of national and international organisations valued at more than £93 million annually.**

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