

TCS/20/11 - Comprehensive longitudinal characterisation of refractory and relapsing oropharyngeal squamous cell carcinoma by tumour and blood-based genome sequence analysis.

Cancers of the throat, oropharyngeal squamous cell carcinoma (OPSCC), are highly prevalent across Scotland. Over the past 10 years, both global and Scottish cases of OPSCC have increased, particularly those associated with human papillomavirus (HPV). However there has been little change in techniques for diagnosis and monitoring. Although imaging technologies are improving, results of imaging are often indeterminate and clinicians require additional tools to make informed decisions. With this in mind our research team have established a range of blood-based tests which detect and monitor cancer DNA fragments shed by tumours into the blood stream in OPSCC patients. Our initial studies have shown that such tests, which are minimally invasive compared to surgical biopsy, hold the potential to provide an accurate, “real-time” method to monitor patient response to treatment, identify early relapse and assist in clinical decision making. We aim to expand these results to assist clinical decisions for both virally associated and non-viral associated OPSCC. Following this, we will focus on the poorest prognosis OPSCC group (non-HPV tumours) by applying state-of-the-art DNA detection and sequencing technologies to analyse tumour-derived DNA fragments in the bloodstream, to follow treatment response and to develop new methods for detecting relapse and resistance to treatment in OPSCC. Ultimately, we envisage that the implementation of such genetic assays of tumours and the fragments that they release into the bloodstream will provide a transformative shift in the clinical assessment and quality of life of OPSCC patients in Scotland.