World Conference on Lung Cancer
Amsterdam, The Netherlands, 3–7 July

High level of epidermal growth factor receptor expression predicts improved survival with cetuximab in lung cancer

A high level of epidermal growth factor receptor (EGFR) expression in patients with non-small cell lung cancer is a good predictor of increased survival with cetuximab added to first-line chemotherapy, shows a study reported at the conference.

The phase III FLEX study has previously shown that adding cetuximab to first-line, platinum-based chemotherapy significantly improves overall survival in patients with EGFR-expressing advanced non-small cell lung cancer. A pre-planned analysis examined the association between EGFR expression in patients' tumours and their clinical outcome.

Around one-third (31%) of the 1121 patients in the study had high tumour EGFR expression (defined as >200 on a scale of 0–300, based on the number of tumour cells expressing EGFR and the intensity of immunohistochemistry staining).

The lead investigator, Professor Robert Pirker, Professor of Medicine at the Medical University of Vienna, Austria, reported that overall survival was significantly prolonged when cetuximab, a monoclonal antibody directed against EGFR, was added to chemotherapy in patients with high EGFR expression, compared to chemotherapy alone (median 12.0 *vs* 9.6 months; hazard ratio 0.73; P=0.011). Patients with low EGFR expression (<200) gained no survival benefit from adding cetuximab.

One-year survival was 50% in patients with high EGFR expression treated with cetuximab plus chemotherapy, compared to 37% with chemotherapy alone. Two-year survival was also higher (24% *vs* 15%).

Professor Robert Pirker, Professor of Medicine at the Medical University of Vienna, Austria

'This new analysis of the FLEX study has allowed us to identify which patients with non-small cell lung cancer are most likely to benefit from treatment with cetuximab in the first-line setting,' said Professor Pirker.

He noted that this is the first trial to show that EGFR is a disease-related biomarker that can be used to tailor cetuximab treatment to patients most likely to derive a clinically meaningful benefit. Immunohistochemistry is a simple methodology that is widely available in pathology departments, he added.

Susan Mayor

Investment in thoracic surgery improves resection rate

Increased funding for specialist thoracic surgical expertise has significantly increased the rate of surgical resection in patients with non-small cell lung cancer in England, according to recent data.

There has been significant investment in specialist thoracic surgeons over the past few years. In 2008, only 13 of the 31 units (42%) providing thoracic surgery services had two or more pure thoracic surgeons. This increased to 18 units (58%) in 2009.

Mr David Waller, from Glenfield Hospital, Leicester, reported results from a study looking at the impact of this investment on resection rates in lung cancer. In 2008 14.2% of patients with confirmed non-small cell lung cancer (2240 patients from a total of 15774 recorded cases) underwent surgical resection. This increased to 20.7% in 2009.

Cancer networks with increased numbers of specialist surgeons had significantly increased resection rates than those without (median 66.3% *vs* 19%). In trusts with a pure thoracic surgeon present in more than two-thirds of lung cancer multidisciplinary team meetings, the resection rate was significantly higher than those with low attendance (median 14.7% *vs* 11.7%).

Susan Mayor

Lung tumours in never smokers have more genomic instability

Lung adenocarcinomas in people who have never smoked show greater genomic instability than tumours in smokers, supporting the hypothesis that lung cancers arise by different pathways.

A study analysed DNA from lung adenocarcinomas from 30 people who had never smoked, 14 former smokers and 39 current smokers, and compared it with matched non-malignant tissue from study subjects. The DNA was assessed for EGFR and KRAS mutations. On average, tumour tissue from never smokers showed higher frequencies of gene copy number alterations and greater proportions of altered genomes than those from smokers.

Lung cancers in people who have never smoked typically show a higher incidence of EGFR mutations and better responses to EGFR-targeted drugs.

'The discovery that there are different patterns of genetic alterations in smokers and never smokers suggests that lung cancers in these cohorts are...driven by different molecular mechanisms, and so may require different treatments,' said principal investigator, Kelsie Thu, a researcher at the BC Cancer Agency Research Centre in Vancouver, Canada.

Susan Mayor