NATIONAL INSTITUTE FOR HEALTH AND CLINICAL EXCELLENCE

Health Technology Appraisal

Bevacizumab for the treatment of non small cell lung cancer

Final Scope

Remit / Appraisal objective

To appraise the clinical and cost effectiveness of bevacizumab for the treatment of non small cell lung cancer.

Background

Lung cancer is the term used to refer to tumours arising from the respiratory epithelium in the bronchi, bronchioles and alveoli. Lung cancers are classified into two main categories: small cell lung cancers (SCLC) which account for about 20% of cases, and non small cell lung cancers (NSCLC) which account for the other 80%. Non small cell lung cancers include squamous cell carcinomas (35% of lung cancers), adenocarcinomas (27%) and large cell carcinomas (10%).

Survival rates for lung cancer are very poor. In England, for patients diagnosed between 1993 and 1995 and followed up to 2000, 21.4% of men and 21.8% of women with lung cancer were alive 1 year after diagnosis and only 5.5% of both men and women are alive after 5 years. For Wales the latest figures on survival for people diagnosed between 1994 and 1998 showed 1 year relative survival of 20.5% for both men and women and 5 year relative survival figures of 6% of both men and women.

In England and Wales, nearly 29,000 deaths were attributed to lung cancer in 2002. Lung cancer is the most common cause of cancer-related death for men, who account for 60% of lung cancer cases. In women, lung cancer is the second most common cause of cancer-related death after breast cancer.

Surgical resection and radical dose radiation with/without chemotherapy for selected patients can be curative for non small cell lung cancer. However, approximately 85% (13,800) of patients with non squamous non small cell lung cancer will present with advanced disease not suitable for curative surgical resection. For these patients treatment aims to prolong life and improve quality of life. Treatment options at this stage include combinations of chemotherapy, radiotherapy, surgery and best supportive care. NICE estimates that about 25% of patients with advanced non small cell lung cancer will receive first line chemotherapy.

Current NICE guidance recommends that chemotherapy should be offered to patients with stage III or IV NSCLC and good performance status (WHO performance status of 0 or 1, or a Karnofsky score of between 80 and 100). In addition, current NICE guidance recommends the regimen for patients

receiving chemotherapy should include a combination of a platinum drug (cisplatin/carboplatin) and a single third generation drug (docetaxel, gemcitabine, pacitaxel or vinorelbine). Single agent chemotherapy with a third generation drug can be offered to patients who cannot tolerate a platinum combination.

The technology

Bevacizumab (Avastin; Roche Pharmaceuticals) is a monoclonal antibody which binds to vascular endothelial growth factor (VEGF) and thereby inhibits the binding of VEGF to its receptors, Flt-1 (VEGFR-1) and KDR (VEGFR-2), on the surface of endothelial cells. Neutralising the biological activity of VEGF reduces the vascularisation in targeted tumours, thereby preventing tumour growth. When combined with cytotoxic drugs bevacizumab may improve access of chemotherapy to the tumour.

The manufacturer submitted an application for an extension to the marketing authorisation for bevacizumab to the EMEA in August 2006.. Bevacizumab has been included in clinical trials in addition to platinum-based therapy for the treatment of NSCLC in patients who have locally advanced, metastatic or recurrent non-squamous lung cancer.

Intervention(s)	Bevacizumab with platinum-containing combination chemotherapy regimens (a combination of a platinum-containing drug and a single third generation drug).
Population(s)	Patients with untreated locally advanced, metastatic or recurrent NSCLC who have a predominantly non-squamous histology.
Standard comparators	Platinum-containing combination chemotherapy regimens (a combination of a platinum-containing drug and a single third generation drug) without the addition of bevacizumab.
Outcomes	The outcome measures to be considered include: • overall survival • progression free survival • health-related quality of life • tumour and symptom response • adverse effects of treatment.

Economic analysis	The reference case stipulates that the cost effectiveness of treatments should be expressed in terms of incremental cost per quality-adjusted life year. The time horizon of the analysis should attempt to capture the benefits/costs over the lifetime of the patient. Costs will be considered from an NHS and Personal Social Services perspective.
Other considerations	Guidance will only be issued in accordance with the anticipated marketing authorisation. If evidence is available, the impact of radiotherapy as a confounding factor in the treatment of patients with NSCLC will be considered. If the evidence allows, the appraisal will attempt to identify criteria for selecting patients for whom bevacizumab would be particularly appropriate.
Related NICE recommendations	Related Technology Appraisals: *Completed appraisals* Appraisal of docetaxel, paclitaxel, gemcitabine, vinorelbine in non small cell lung cancer (2003 – now incorporated into NICE Clinical Guideline no 24: Lung cancer). *Appraisals in progress* Erlotinib for the treatment of non small cell lung cancer (Single Technology Appraisal) Pemetrexed for the treatment of non small cell lung cancer (Single Technology Appraisal) Related Guidelines: National Institute for Clinical Excellence (2005) Lung cancer: The diagnosis and treatment of lung cancer. London no.24: National Institute for Clinical Excellence