NATIONAL INSTITUTE FOR HEALTH AND CARE EXCELLENCE

Single Technology Appraisal

Ramucirumab for previously treated locally advanced or metastatic non-small-cell lung cancer

Final scope

Remit/appraisal objective

To appraise the clinical and cost effectiveness of ramucirumab within its marketing authorisation for treating locally advanced or metastatic non-small-cell lung cancer that has progressed after platinum-based chemotherapy.

Background

Lung cancer falls into 2 histological categories: non-small-cell lung cancers, which account for 85–90% of all lung cancers, and small-cell lung cancers. Non-small-cell lung cancer may be further grouped by tumour histology into squamous cell carcinoma, adenocarcinoma and large cell carcinoma, with the latter 2 being collectively referred to as 'non-squamous' lung cancer.

In England, there were 34,889 people newly diagnosed with lung cancer in 2011. Approximately 30% of people present with locally advanced disease (stage III; the cancer may have grown into the surrounding tissues and there may be cancer cells in the lymph nodes) and 40% with metastatic disease (stage IV; the cancer has spread to another part of the body). The prognosis for people with non-small-cell lung cancer is generally poor, with a 5-year survival rate of 9%. Approximately 28,300 deaths from lung cancer were registered in England in 2012[1].

For most people with non-small-cell lung cancer, the aim of treatment is to extend survival and improve quality of life. For many people with stage IIIB or IV disease, the cancer has spread too far for surgery or radiotherapy to be effective, so chemotherapy is recommended. For people with previously untreated, stage III or IV non-small-cell lung cancer and good performance status, NICE clinical guideline 121 recommends chemotherapy with a platinum drug (carboplatin or cisplatin) in combination with a third-generation drug (docetaxel, gemcitabine, paclitaxel or vinorelbine). Alternatively, people may receive pemetrexed in combination with cisplatin if the histology of the tumour has been confirmed as adenocarcinoma or large-cell carcinoma (NICE technology appraisal 181). If subsequent treatment is appropriate, docetaxel monotherapy should be considered for people with locally advanced or metastatic non-small-cell lung cancer that has relapsed after previous chemotherapy (NICE clinical guideline 121). NICE technology appraisal 162 (which is currently being reviewed) also recommends erlotinib, as an alternative treatment option to docetaxel, for previously treated, non-small-cell lung cancer in people in whom docetaxel is suitable. Nintedanib in combination with docetaxel is recommended for treating locally advanced,

metastatic or locally recurrent non-small-cell lung cancer of adenocarcinoma histology (NICE technology appraisal 347). People with anaplastic-lymphoma-kinase-positive non-small-cell lung cancer may receive second-line treatment with crizotinib (not recommended by NICE in technology appraisal 296 but funded via the Cancer Drugs Fund [at the time of issuing the scope]).

The technology

Ramucirumab (Cyramza, Eli Lilly) is a fully human immunoglobulin G1 monoclonal antibody. It specifically blocks the vascular endothelial growth factor receptor-2, which plays an important role in angiogenesis (formation of new blood vessels) in tumours. Ramucirumab is administered intravenously.

Ramucirumab does not currently have a marketing authorisation in the UK for locally advanced or metastatic non-small-cell lung cancer. Ramucirumab plus docetaxel has been studied in clinical trials, compared with placebo plus docetaxel, in adults with stage IV non-small-cell lung cancer after disease progression on platinum-based therapy.

Intervention(s)	Ramucirumab in combination with docetaxel
Population(s)	People with locally advanced or metastatic non-small-cell lung cancer that has progressed after platinum-based chemotherapy
Comparators	• Docetaxel • Erlotinib (subject to ongoing NICE review) For people with squamous tumour histology only: • Nivolumab (subject to ongoing NICE appraisal) For people with adenocarcinoma tumour histology only: • Nintedanib in combination with docetaxel For people with anaplastic-lymphoma-kinase-positive non-small-cell lung cancer only: • Crizotinib (not recommended by NICE but funded via the CDF)
Outcomes	The outcome measures to be considered include: • overall survival • progression-free survival • response rates • adverse effects of treatment • health-related quality of life.

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 reference case stipulates that the time horizon for estimating clinical and cost effectiveness should be sufficiently long to reflect any differences in costs or outcomes between the technologies being compared. Costs will be considered from an NHS and Personal Social Services perspective. The availability of any patient access schemes for the intervention or comparator technologies should be taken into account.
Other considerations	Guidance will only be issued in accordance with the marketing authorisation. Where the wording of the therapeutic indication does not include specific treatment combinations, guidance will be issued only in the context of the evidence that has underpinned the marketing authorisation granted by the regulator.
Related NICE recommendations and NICE Pathways	Related Technology Appraisals: 'Nintedanib for previously treated locally advanced, metastatic, or locally recurrent non-small-cell lung cancer' (2015). NICE technology appraisal 347. Review date July 2018. 'Crizotinib for previously treated non-small-cell lung cancer associated with an anaplastic lymphoma kinase fusion gene' (2013). NICE Technology Appraisal 296. Review date May 2016. 'Erlotinib for the treatment of non-small-cell lung cancer' (2008). NICE Technology Appraisal 162. Currently under review. 'Pemetrexed for the treatment of non-small-cell lung cancer' (2007). NICE Technology Appraisal 124. Guidance on static list. Appraisals in development: 'Erlotinib and gefitinib for treating non-small-cell lung cancer that has progressed following prior chemotherapy (Review of TA162 and TA175)'. NICE technology appraisal guidance [ID620]. Publication date to be confirmed. 'Nivolumab for treating metastatic, squamous, non-small-cell lung cancer after chemotherapy'. NICE technology appraisal guidance [ID811]. Publication date

	May 2016. Proposed appraisal 'Pembrolizumab for treating advanced or recurrent PD-L1 positive non-small-cell lung cancer after progression with platinum-based chemotherapy'. Proposed NICE technology appraisal [ID840]. Publication date to be confirmed. Related Guidelines: 'Lung cancer: The diagnosis and treatment of lung cancer' (2011). NICE clinical guideline 121. Review date June 2015. Related Quality Standards: 'Lung cancer for adults' (2012). NICE quality standard 17. Related NICE Pathways: Lung Cancer (2012) NICE pathway
Related National Policy	**National Service Frameworks** Cancer **Department of Health** Department of Health (2013) NHS Outcomes Framework 2014–2015 Department of Health (2011) Improving outcomes: a strategy for cancer Department of Health (2009) Cancer commissioning guidance Department of Health (2007) Cancer reform strategy

References

[1] Cancer Research UK (2013) Lung cancer statistics. Accessed March 2015.