NATIONAL INSTITUTE FOR HEALTH AND CARE EXCELLENCE

Single Technology Appraisal

Sugemalimab with chemotherapy for untreated metastatic non-small-cell lung cancer [ID4001]

Final scope

Final remit/appraisal objective

To appraise the clinical and cost effectiveness of sugemalimab within its marketing authorisation for untreated metastatic non-small-cell lung cancer.

Background

Lung cancer falls into two main histological categories: around 88% are non-small-cell lung cancers (NSCLC) and the remainder are small-cell lung cancers.[1] NSCLC can be further classified into squamous cell carcinoma and non-squamous cell carcinoma. Approximately 85% of NSCLC are of non-squamous histology and can be either large-cell undifferentiated carcinoma or adenocarcinoma.[2] Most lung cancers are diagnosed at an advanced stage, when the cancer has spread to lymph nodes and other organs in the chest (locally advanced disease; stage III) or to other parts of the body (metastatic disease; stage IV).

In 2018, 21,878 people were diagnosed with NSCLC in England, of whom around 59% had stage IV disease.[3] Around a third of people with lung cancer survive for more than 1 year after diagnosis, however this is reduced to around a fifth of people diagnosed at stage IV.[4]

Cancer cells expressing an immunologic marker called programmed cell death 1 ligand (PD-L1) are believed to suppress certain immune responses and cause increased tumour aggressiveness. The proportion of NSCLC that express PD-L1 in England is unknown.

In metastatic stage IV NSCLC, treatment aims to control the cancer for as long as possible and help with symptoms. Treatment generally includes chemotherapy, targeted drugs and symptomatic treatments. Treatment choices are influenced by histology (squamous or non-squamous), the presence of biological markers (such as mutations in epidermal growth factor receptor-tyrosine kinase [EGFR)], anaplastic-lymphoma-kinase [ALK] or programmed death-ligand 1 [PD-L1] status), and previous treatment experience.

For people with untreated non-squamous NSCLC with no EGFR-, ALK-, RET- and ROS1-positive mutations, treatment options include:

- Any PD-L1 expression level: pembrolizumab with pemetrexed and platinum chemotherapy (NICE technology appraisal guidance 683)
- PD-L1 expression less than 50%: atezolizumab with bevacizumab, carboplatin and paclitaxel (NICE technology appraisal guidance 584), pemetrexed in combination with cisplatin, with or without pemetrexed maintenance (if the histology of the tumour has been confirmed as adenocarcinoma or large-cell carcinoma; NICE technology appraisal

guidance 181 and 402) or other platinum doublet chemotherapy, with or without pemetrexed maintenance (NICE guideline 122 and NICE technology appraisal guidance 190).

- PD-L1 expression 50% or more: pembrolizumab monotherapy (NICE technology appraisal guidance 531) and atezolizumab monotherapy (NICE technology appraisal guidance 705)

For people with untreated squamous NSCLC, treatment options include:

- Any PD-L1 expression level: pembrolizumab with carboplatin and paclitaxel (available for use within the Cancer Drugs Fund only; NICE technology appraisal guidance 600)

- PD-L1 expression less than 50%: gemcitabine or vinorelbine and cisplatin or carboplatin (NICE technology appraisal guidance 181) or pembrolizumab with carboplatin and paclitaxel (NICE technology appraisal guidance 770).

- PD-L1 expression 50% or more: pembrolizumab monotherapy (NICE technology appraisal guidance 531) or atezolizumab monotherapy (NICE technology appraisal guidance 705) or pembrolizumab with carboplatin and paclitaxel when in need of urgent clinical intervention (NICE technology appraisal guidance 770).

The technology

Sugemalimab (brand name unknown, EQRx) is a fully human immunoglobulin G4 (IgG4) monoclonal antibody that binds to the programmed cell death-1 (PD-1) receptor and blocks its interaction with its ligands PD-L1 and PD-L2, thereby activating the patient's immune system to attack the cancer. It is administered intravenously.

Sugemalimab with platinum-based chemotherapy does not currently have a marketing authorisation for untreated metastatic NSCLC. It has been studied in a clinical trial compared with placebo and platinum-based chemotherapy in adults with untreated metastatic NSCLC without known EGFR-, ALK-, RET- and ROS1-positive mutations.

Intervention(s)	Sugemalimab with platinum-based chemotherapy
Population(s)	Adults with untreated metastatic non-small-cell lung cancer with no EGFR-, ALK-, RET- or ROS1-positive mutations.
Comparators	**For adults with non-squamous histology:** • Pembrolizumab combination (with pemetrexed and platinum chemotherapy) • Atezolizumab combination (with bevacizumab, carboplatin and paclitaxel) • Pemetrexed with a platinum drug (carboplatin or cisplatin) pemetrexed

	○ with or without pemetrexed maintenance treatment • Platinum doublet chemotherapy (docetaxel, gemcitabine, paclitaxel or vinorelbine with carboplatin or cisplatin) ○ with or without pemetrexed maintenance treatment • Atezolizumab monotherapy • Pembrolizumab monotherapy • Cemiplimab monotherapy (subject to ongoing NICE appraisal) **For adults with squamous histology:** • Pembrolizumab with carboplatin and paclitaxel • Platinum doublet chemotherapy (gemcitabine or vinorelbine with carboplatin or cisplatin) • Pembrolizumab monotherapy • Atezolizumab monotherapy • Cemiplimab monotherapy (subject to ongoing NICE appraisal)
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. If the technology is likely to provide similar or greater health benefits at similar or lower cost than technologies recommended in published NICE technology appraisal guidance for the same indication, a cost-comparison may be carried out. 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 commercial arrangements for the intervention, comparator and subsequent treatment

	technologies will be taken into account. The availability of any managed access arrangement for the intervention will be taken into account.
Other considerations	If the evidence allows the following subgroups will be considered. These include: - PD-L1 expression - Histology (squamous or non-squamous) The availability and cost of biosimilar and generic products should be taken into account. 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	**Related Technology Appraisals:** Pembrolizumab with carboplatin and paclitaxel for untreated metastatic squamous non-small-cell lung cancer (2022) NICE technology appraisals guidance 770. Nivolumab with ipilimumab and chemotherapy for untreated advanced non-small-cell lung cancer (2021) NICE technology appraisal guidance 724. Atezolizumab monotherapy for untreated advanced non-small-cell lung cancer (2021) NICE technology appraisal guidance 705. Pembrolizumab with pemetrexed and platinum chemotherapy for untreated, metastatic, non-squamous non-small-cell lung cancer (2021) NICE technology appraisals guidance 683. Atezolizumab in combination for treating metastatic non-squamous non-small-cell lung cancer (2019) NICE technology appraisal 584. Pembrolizumab for untreated PD-L1-positive metastatic non-small-cell lung cancer (2018) NICE technology appraisal guidance 531. Pemetrexed maintenance treatment for non-squamous non-small-cell lung cancer after pemetrexed and cisplatin (2016) NICE technology appraisal guidance 402. Pemetrexed for the maintenance treatment of non-small-cell lung cancer (2010, updated 2017) NICE technology appraisals guidance 190. Pemetrexed for the first-line treatment of non-small-cell lung cancer (2009, updated 2014) NICE technology appraisal 181. Pemetrexed for the treatment of non-small-cell lung

	cancer (2007, updated 2017) NICE technology appraisal guidance 124. **Appraisals in development:** Cemiplimab for untreated PD-L1-postive advanced or metastatic non-small-cell lung cancer. NICE technology guidance [ID3839]. Publication date to be confirmed. Veliparib with carboplatin and paclitaxel for untreated non-squamous non-small-cell lung cancer. NICE technology appraisal guidance [ID1277]. Publication date to be confirmed. Liposomal cisplatin in combination with chemotherapy for treating inoperable advanced non-small cell lung cancer. NICE technology appraisal guidance [ID657]. Publication date to be confirmed. **Related Guidelines:** Lung cancer: diagnosis and management (2019) NICE guideline 122. **Related Interventional Procedures:** Microwave ablation for treating primary lung cancer and metastases in the lung (2013). NICE interventional procedures guidance 469. Percutaneous radiofrequency ablation for primary or secondary lung cancers (2010) NICE Interventional Procedures Guidance 372. **Related quality standards:** Lung cancer in adults (2012, updated 2019) NICE quality standard 17.
Related National Policy	The NHS Long Term Plan, 2019. NHS Long Term Plan NHS England (2018/2019) NHS manual for prescribed specialist services (2018/2019) Chapter 105: specialist cancer services (adults) Department of Health and Social Care, NHS Outcomes Framework 2016-2017: Domain 1. https://www.gov.uk/government/publications/nhs-outcomes-framework-2016-to-2017

References

[1] National Lung Cancer Audit (2021). Royal College of Physicians. Accessed November 2021.

[2] Non-small cell lung cancer treatment. National Cancer Institute. Accessed November 2021.

[3] National Lung Cancer Audit: 2019 information sheet (for the audit period 2018) (2020). Royal College of Physicians. Accessed November 2021.

[4] Lung cancer survival statistics (2010-11). Cancer Research UK. Accessed November 2021.