NATIONAL INSTITUTE FOR HEALTH AND CARE EXCELLENCE

Health Technology Evaluation

Dupilumab for treating moderate to severe chronic obstructive pulmonary disease ID6235

Final scope

Remit/evaluation objective

To appraise the clinical and cost effectiveness of dupilumab within its marketing authorisation for treating moderate to severe chronic obstructive pulmonary disease (COPD).

Background

Chronic obstructive pulmonary disease (COPD) is the name for a group of lung conditions that can cause breathing difficulties. It includes chronic bronchitis, emphysema, chronic obstructive airways disease and chronic airflow limitation. It is characterised by persistent airways obstruction, causing symptoms including persistent and often progressive breathlessness, a chronic productive cough and limited exercise capacity. The impairment of lung function is usually progressive and is not fully reversible. COPD is often caused by smoking although it can be caused by long-term exposure to harmful fumes or dust and can also affect people who have never smoked. NICE guideline NG115 defines COPD as a post bronchodilator ratio of forced expiratory volume in 1 second (FEV_1) to forced vital capacity (FVC) of less than 0.7. Moderate COPD is defined as FEV_1 between 50% and 79% predicted normal and severe COPD as FEV_1 30% and 49% predicted normal. Type 2 inflammation is associated with higher rates of exacerbations and lower quality of life, it can be identified through raised blood eosinophils and fractional exhaled nitric oxide (FeNO). [1]

There is an estimated 1.2 million people with a COPD diagnosis.[2] The prevalence of COPD is increasing, the number of those newly diagnosed increased by 27% in the last 10 years to approximately 2,000 per 100,000.[1] COPD is more common in men and people over the age of 40, it becomes more common with increasing age and is generally higher among smokers.[3]

Treatment for COPD aims to slow its progression, control the symptoms and reduce exacerbations. For people with stable chronic obstructive pulmonary disease who are breathless and have limited exercise capacity, NICE guideline NG115 recommends initial therapy with short-acting $beta_2$ agonist (SABA) or short-acting muscarinic antagonists (SAMA). For people who have symptoms that adversely impact quality of life or have 1 severe or 2 moderate exacerbations, dual therapy with long-acting beta2 agonists (LABA) and long-acting muscarinic antagonists (LAMA) or inhaled corticosteroids (ICS) is recommended before trial of all these treatments (triple inhaled therapy). NICE guideline NG115 also recommends smoking cessation, pulmonary rehabilitation, pneumococcal and influenza vaccinations, personalised self-management plan and optimising treatment for co-morbidities as part of the management of stable chronic obstructive pulmonary disease.

NICE technology appraisal (TA461) recommends roflumilast for treating severe COPD in people who have had 2 more exacerbations in the previous 12 months despite triple therapy with a long-acting muscarinic antagonist, long-acting beta agonist and an inhaled corticosteroid.

The technology

Dupilumab (Dupixent, Sanofi) does not currently have marketing authorisation in the UK for treating COPD. It is being studied in clinical trials, compared with placebo, as an add-on treatment to triple therapy (long-acting muscarinic antagonists [LAMA], long-acting beta2 agonists [LABA], and inhaled corticosteroids [ICS]) or double therapy (long-acting muscarinic antagonists [LAMA] and long-acting beta2 agonists [LABA] if inhaled corticosteroids is contraindicated), in adults aged 40 to 80 with moderate-to-severe COPD with evidence of type 2 inflammation and high exacerbation risk.

Dupilumab has a marketing authorisation for severe asthma with type 2 inflammation characterised by raised blood eosinophils and/or raised fraction of exhaled nitric oxide (FeNO) in children aged 6 and older, adolescents and adults as add-on maintenance treatment.

Intervention(s)	Dupilumab as an add-on to triple inhaled therapy or dual therapy where ICS is not appropriate
Population(s)	Adults with moderate to severe COPD and raised eosinophils who have uncontrolled disease on triple inhaled therapy or dual therapy where ICS is not appropriate.
Subgroups	If the evidence allows, the following subgroups of people will be considered: • High eos (≥500 cells per microlitre) • High FeNO (≥20 ppb)
Comparators	• Standard care without dupilumab (triple inhaled therapy or dual therapy where ICS is not appropriate) • Roflumilast in combination with a long-acting muscarinic antagonist, a long-acting beta-2 agonist and an inhaled corticosteroid (for people who had 2 or more exacerbations in the previous 12 months despite triple inhaled therapy) • Azithromycin

Outcomes	The outcome measures to be considered include: • lung function • incidence and severity of acute exacerbations • symptom control • mortality • 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 commercial arrangements for the intervention, comparator and subsequent treatment technologies will 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	**Related technology appraisals:** Roflumilast for treating chronic obstructive pulmonary disease (2017) NICE technology appraisal guidance 461. **Related technology appraisals in development:** Mepolizumab for treating chronic obstructive pulmonary disease. NICE technology appraisal guidance [ID1237] Publication date to be confirmed **Related highly specialised technology appraisals in development:** Human alpha1-proteinase inhibitor for treating emphysema. NICE highly specialised technology guidance [ID856] Publication date to be confirmed. **Related NICE guidelines:** Chronic obstructive pulmonary disease (acute exacerbation): antimicrobial prescribing (2018) NICE guideline NG114. **Related quality standards:**

	Chronic obstructive pulmonary disease in adults (2011) NICE quality standard 10
Related National Policy	NHS England (2023) Prescribed specialised services manual (version 6) Chapter 4 Adult specialist respiratory services NHS England (2022) Clinical Commissioning Policy: Lung volume reduction by surgery or endobronchial valve for severe emphysema in adults. 200806P [1622]. The NHS Long Term Plan (2019) NHS Long Term Plan NHS RightCare (2017) Chronic Obstructive Pulmonary Disease (COPD) Pathway

References

1. Global Initiative for Chronic Obstructive Lung Disease. Global strategy for the diagnosis, management, and prevention of chronic obstructive pulmonary disease, 2020. [online; accessed 21 June 2023]

2. British Lung Foundation Chronic obstructive pulmonary disease (COPD) statistics [online; accessed; 21 November 2023]

3. Patient Chronic Obstructive Pulmonary Disease COPD [online; accessed 21 November 2023]