NATIONAL INSTITUTE FOR HEALTH AND CARE EXCELLENCE

Health Technology Appraisal

Neratinib for treating early hormone receptor-positive, HER2-positive breast cancer after adjuvant trastuzumab [ID981]

Final scope

Remit

To appraise the clinical and cost effectiveness of neratinib within its marketing authorisation for extended adjuvant treatment of early-stage hormone receptor-positive, HER2-positive breast cancer after adjuvant trastuzumab therapy.

Background

Breast cancer is described as 'early' if it is restricted to the breast, or the breast and nearby lymph nodes, and has not spread to other parts of the body; and described as 'advanced' if it has spread to other parts of the body and cannot be completely removed by surgery.

Human epidermal growth factor receptor 2 (HER2) is a receptor for a growth factor which occurs naturally in the body. Breast cancer cells with higher than normal level of HER2 receptors are described as being HER2-positive. Hormone receptor-positive breast cancer cells have either oestrogen or progesterone receptors, although it is rare for the cells to be positive for progesterone receptors only.

In 2016 in England, around 45,960 people were diagnosed with breast cancer[1]. In 2016 there were 9,685 deaths from breast cancer in England[2]. It is estimated that approximately 15-25% of women with breast cancer will have HER2-positive tumours. Over two thirds have hormone receptor-positive breast cancer.

NICE guideline 101 recommends offering adjuvant trastuzumab for people HER2‑positive invasive breast cancer who need adjuvant therapy to reduce the risk of the cancer coming back. The decision about whether to have adjuvant therapy is based on an assessment of the risk of the cancer coming back and the potential benefits and side effects of the treatment. Adjuvant trastuzumab is given for 1 year or until disease recurrence, whichever is the shorter period. People with oestrogen receptor-positive breast cancer at medium to high risk of recurrence are offered adjuvant endocrine therapy (usually an aromatase inhibitor).

The technology

Neratinib (Nerlynx, Puma) is an irreversible tyrosine kinase inhibitor that blocks signal transduction through three epidermal growth factor receptors;

ErbB1/HER1, ErbB2/HER2, and ErbB4, resulting in sustained inhibition of these growth-promoting pathways. It is administered orally.

Neratinib has a marketing authorisation in the UK. It is indicated for 'the extended adjuvant treatment of adult patients with early-stage hormone receptor positive HER2-overexpressed/amplified breast cancer and who are less than one year from the completion of prior adjuvant trastuzumab based therapy'.

Intervention(s)	Neratinib
Population(s)	Patients with early hormone receptor-positive, HER2-positive breast cancer, who have completed a course of adjuvant trastuzumab less than one year ago.
Comparators	Standard treatment with no further HER2 directed therapy
Outcomes	The outcome measures to be considered include: • overall survival • disease-free survival • 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.
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: 'Hormonal therapies for the adjuvant treatment of early oestrogen-receptor-positive breast cancer' (2006) NICE technology appraisal guidance 112. 'Docetaxel for the adjuvant treatment of early node-positive breast cancer' (2006) NICE technology appraisal guidance 109. 'Paclitaxel for the adjuvant treatment of early node-positive breast cancer' (2006) NICE technology appraisal guidance 108. 'Trastuzumab for the adjuvant treatment of early-stage HER2-positive breast cancer' (2006) NICE technology appraisal guidance 107. 'Pertuzumab for the neoadjuvant treatment of HER2-positive breast cancer' (2016) NICE technology appraisal guidance 424. Appraisals in development: 'Pertuzumab for the adjuvant treatment of HER2-positive breast cancer' NICE technology appraisals guidance [ID1192]. Publication expected January 2019 Related Guidelines: 'Early and locally advanced breast cancer: diagnosis and management' (2018). NICE guideline 101. Update in progress, expected publication date July 2018. Related Quality Standards: 'Breast cancer quality standard' (2011). NICE quality standard 12. Last updated June 2016 Related NICE Pathways: Early and locally advanced breast cancer (2011) NICE pathway: http://pathways.nice.org.uk/pathways/early-and-locally-advanced-breast-cancer. Last updated July 2018

Related National Policy	Breast cancer services, with the exception of radiotherapy and chemotherapy, are commissioned by the Clinical Commissioning Groups according to the NHS England Manual for Prescribed Specialised Services 2018/19 (page 276) Department of Health, NHS Outcomes Framework 2016-2017 (published 2016): Domains 1 and 2. https://www.gov.uk/government/publications/nhs-outcomes-framework-2016-to-2017