NATIONAL INSTITUTE FOR HEALTH AND CARE EXCELLENCE

Single Technology Appraisal

Pertuzumab for the adjuvant treatment of HER2-positive breast cancer

Final scope

Final remit/appraisal objective

To appraise the clinical and cost effectiveness of pertuzumab within its marketing authorisation for the adjuvant treatment of human epidermal growth factor receptor 2 (HER2) positive breast cancer.

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 (that is at clinical stages 1 and 2). It is described as 'locally advanced' if the cancer is in a large part of the breast (more than 5 cm) but has not spread to other parts of the body (clinical stage 3), and described as 'advanced' if it has spread to other parts of the body and cannot be completely removed by surgery (clinical stage 4). Human epidermal growth factor receptor 2 (HER2) is a receptor for a growth factor which occurs naturally in the body. When human epidermal growth factor attaches itself to HER2 receptors on breast cancer cells, it can stimulate the cells to divide and grow. Some breast cancer cells have more HER2 receptors than others. In this case, the tumour is described as being HER2-positive.In 2014, there were approximately 46,500 new diagnoses of breast cancer in England[1]. It is estimated that approximately 15-25% of women with breast cancer will have HER2-positive tumours. Men are less likely to have HER-2 positive breast cancers[2].

NICE clinical guideline 80 (CG80) recommends that early breast cancer be treated with surgery (to remove the tumour) followed by adjuvant treatment to reduce the risk of the cancer coming back (recurrence).

CG 80 recommends adjuvant chemotherapy with docetaxel containing regimen in patients with lymph node-positive breast cancer. It also recommends trastuzumab (a monoclonal antibody) as an adjuvant treatment for women with early-stage HER2-positive breast cancer following surgery.

The technology

Pertuzumab (Perjeta, Roche Products) is a recombinant monoclonal antibody which targets HER2-positive breast tumours. It interrupts the activation of the HER2 intracellular signalling pathway, leading to cell growth arrest and apoptosis. Pertuzumab is administered by intravenous infusion.

Pertuzumab does not have a UK marketing authorisation for the adjuvant treatment of HER2-positive breast cancer. It has been studied in combination with trastuzumab and chemotherapy as an adjuvant treatment for HER2 positive, non-metastatic (early and locally advanced) breast cancer in adults who have undergone surgery.

Intervention(s)	Adjuvant pertuzumab in combination with trastuzumab and chemotherapy.
Population(s)	People with early or locally advanced HER2-positive breast cancer who have undergone surgery
Comparators	Standard adjuvant therapy without pertuzumab for HER-2 positive breast cancer: • trastuzumab in combination with chemotherapy
Outcomes	The outcome measures to be considered include: • overall survival • disease-free survival • recurrence-free interval • 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 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. If evidence allows, subgroups with higher risk of recurrence, such as people with lymph node positive disease or people with hormone receptor negative disease, will be considered.
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. Related Guidelines: Early and locally advanced breast cancer (2009) NICE guideline CG80. (currently being updated, Publication expected: July 2018) Gene expression profiling and expanded immunohistochemistry tests for guiding adjuvant chemotherapy decisions in early breast cancer management: MammaPrint, Oncotype DX, IHC4 and Mammostrat (2013) NICE diagnostic guidance 10. Improving outcomes in breast cancer (2002) NICE cancer service guidance. Related Quality Standards: Breast cancer (2011) NICE quality standard 12 last updated June 2016). Related NICE Pathways:

	Early and locally advanced breast cancer (last updated 2017)
Related National Policy	Breast cancer services are commissioned by the Clinical Commissioning Groups according to the NHS England (2017) https://www.england.nhs.uk/wp-content/uploads/2017/10/prescribed-specialised-services-manual-2.pdf (page 236) 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

References

1. Cancer Research UK (2016) Breast cancer incidence (invasive) statistics. Accessed November 2017.

2. Macmillan (2015) HER-2 positive breast cancer. Accessed November 2017.