NATIONAL INSTITUTE FOR HEALTH AND CLINICAL EXCELLENCE

Single Technology Appraisal

Pertuzumab in combination with trastuzumab and docetaxel for the treatment of HER2 positive metastatic or locally recurrent unresectable breast cancer

Scope

Remit/appraisal objective

To appraise the clinical and cost-effectiveness of pertuzumab in combination with trastuzumab and docetaxel within its licensed indication for the treatment of human epidermal growth factor receptor 2 (HER2) positive metastatic or locally recurrent unresectable breast cancer, which has not been previously treated, or has relapsed after adjuvant therapy.

Background

There were over 42,000 women and around 300 men newly diagnosed with breast cancer in England and Wales during 2008, and around 11,000 deaths.

Metastatic breast cancer describes the presence of disease at distant sites such as the bone, liver, or lung. The lymph nodes may also be affected. It has been estimated that 5% of women initially presenting with breast cancer have locally advanced disease or distant metastases.

HER2 is a receptor for a growth factor called human epidermal 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. It is thought that about 1 in 5 women with breast cancer will have HER2-positive tumours.

The role of current treatments for metastatic breast cancer is to palliate symptoms, prolong survival and maintain a good quality of life with minimal adverse events. Treatment depends on, oestrogen receptor status, HER2 status and the extent of the disease.

NICE technology appraisal No. 34 recommends trastuzumab in combination with paclitaxel as an option for people with tumours expressing HER2 scored at levels of 3+ who have not received chemotherapy for metastatic breast cancer and in whom anthracycline treatment is inappropriate. In clinical practice, trastuzumab in combination with either paclitaxel or docetaxel may be used as first-line therapy for patients with HER2 positive tumours.

The technology

Pertuzumab (Perjeta, Roche Products) is a monoclonal antibody targeting HER2. Pertuzumab binds to the HER2 receptor and prevents the pairing (dimerisation) of HER2 with other HER family receptors, inhibiting intracellular signalling. It is administered by intravenous infusion.

Pertuzumab does not have a UK marketing authorisation for the treatment of HER2 positive metastatic breast cancer. The Committee for Medicinal Products for Human Use (CHMP) has adopted a positive opinion, recommending the granting of a marketing authorisation for pertuzumab for use in combination with trastuzumab and docetaxel in adults with HER2-positive metastatic or locally recurrent unresectable breast cancer, who have not received previous anti-HER2 therapy or chemotherapy for their metastatic disease.

Intervention(s)	Pertuzumab (in combination with trastuzumab and docetaxel)
Population(s)	Adults with HER2-positive metastatic or locally recurrent, unresectable breast cancer who have not previously received chemotherapy or HER2 directed treatment for metastatic disease or whose disease has recurred after adjuvant therapy
Comparators	Trastuzumab in combination with a taxane (docetaxel or paclitaxel)
Outcomes	The outcome measures to be considered include: • overall survival • progression free survival • response rate • 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
Related NICE recommendations	Related Technology Appraisals: Technology Appraisal No. 34, March 2002, 'Trastuzumab for the treatment of advanced breast cancer'. Review suspended. Technology Appraisal No. 214, February 2011, 'Bevacizumab in combination with a taxane for the first-line treatment of metastatic breast cancer' (replaces Technology Appraisal No. 147). Review proposal date July 2013. Technology Appraisal No. 257, June 2011, 'Lapatinib or trastuzumab in combination with an aromatase inhibitor for the first-line treatment of metastatic hormone-receptor-positive breast cancer that overexpresses HER2'. Review proposal date August 2014. Technology Appraisal No. 263, June 2012, 'Bevacizumab in combination with capecitabine for the first line treatment of metastatic breast cancer'. Review proposal date June 2015. Related Guidelines: Clinical Guideline No. 81, February 2009, 'Advanced breast cancer: diagnosis and treatment' (replaces previous Technology Appraisals No. 30, 54 and 62). Review proposal date 2013. Related Breast Cancer Pathways: http://pathways.nice.org.uk/pathways/breast-cancer