

NATIONAL INSTITUTE FOR HEALTH AND CARE EXCELLENCE

Multiple Technology Appraisal

Cabozantinib and vandetanib for treating unresectable locally advanced or metastatic medullary thyroid cancer

Final scope

Remit/appraisal objective

To appraise the clinical and cost effectiveness of cabozantinib and vandetanib within their marketing authorisations for treating unresectable locally advanced or metastatic medullary thyroid cancer.

Background

There are four main types of thyroid cancer; papillary, follicular, medullary and anaplastic. Medullary thyroid cancer (MTC) is a rare type of cancer that presents as a mass of tumours in the thyroid gland of the neck, and may include symptoms relating to pressure effects such as dysphagia and dysphonia¹. MTC occurs in the parafollicular cells (also known as C-cells) and there are 4 types: sporadic, multiple endocrine neoplasia (MEN) 2A and 2B and familial medullary thyroid carcinoma².

Thyroid cancer is uncommon and makes up less than 1% of cancer cases in the UK³. MTC accounts for approximately 3% of these cases in adults⁴. In 2013, there were 2,791 new cases of thyroid cancer in the England⁵ with approximately 80 of these being MTC, and a greater number of cases in women than men. The 10-year survival for people with stage IV (advanced and metastatic) MTC is 21%⁶.

The British Thyroid Association's 'Guidelines for the management of thyroid cancer' outlines treatment options for MTC which include surgery, chemotherapy and radiotherapy. Surgery is most common with the aim of removing some or all of the thyroid gland (and sometimes the lymph nodes). External beam radiation can be provided after surgery to destroy any remaining cancer cells; however it is often not effective at treating MTC. Cabozantinib and vandetanib are currently available on the cancer drugs fund as first-line treatments for unresectable, locally advanced or metastatic MTC only if the disease is progressive and symptomatic, and if no previous tyrosine kinase therapy has been given, unless intolerant to vandetanib and cabozantinib (respectively) and in the absence of disease progression. Best supportive care, with or without locally ablative treatments, can be given as an alternative treatment.

The technology

Cabozantinib (Cometriq, Ipsen) inhibits multiple receptor tyrosine kinases implicated in tumour growth and angiogenesis, pathologic bone remodelling,

and metastatic progression of cancer. Cabozantinib has a marketing authorisation in the UK for the treatment of adults with progressive, unresectable locally advanced or metastatic medullary thyroid carcinoma. For patients in whom Rearranged during Transfection (RET) mutation status is not known or is negative, a possible lower benefit should be taken into account before individual treatment decision. Cabozantinib is given orally.

Vandetanib (Caprelsa, SanofiGenzyme) is a potent inhibitor of vascular endothelial growth factor receptor-2, epidermal growth factor receptor (EGFR) and RET tyrosine kinases. Vandetanib has a marketing authorisation in the UK for the treatment of aggressive and symptomatic medullary thyroid cancer (MTC) in patients with unresectable locally advanced or metastatic disease. For patients in whom Rearranged during Transfection (RET) mutation is not known or is negative, a possible lower benefit should be taken into account before individual treatment decision. Vandetanib is given orally.

Intervention(s)	<ul style="list-style-type: none"> • Cabozantinib • Vandetanib
Population(s)	Adults with unresectable locally advanced or metastatic medullary thyroid carcinoma
Comparators	<ul style="list-style-type: none"> • The interventions listed above will be compared with each other • Best supportive care including locally ablative treatments such as radiotherapy
Outcomes	<p>The outcome measures to be considered include:</p> <ul style="list-style-type: none"> • overall survival • progression-free survival • adverse effects of treatment • health-related quality of life.
Economic analysis	<p>The reference case stipulates that the cost effectiveness of treatments should be expressed in terms of incremental cost per quality-adjusted life year.</p> <p>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.</p> <p>Costs will be considered from an NHS and Personal Social Services perspective.</p>
Other considerations	If the evidence allows subgroups according to RET

	<p>mutation status will be considered.</p> <p>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.</p>
Related NICE recommendations and NICE Pathways	<p>Related Quality Standards:</p> <p>'Head and neck cancer'. NICE quality standard in development. Publication date February 2017.</p> <p>Related NICE Pathways:</p> <p>Head and neck cancer NICE pathway</p>
Related National Policy	<p>NHS England</p> <p>NHS England (2014) Manual for prescribed specialised services 13/14. Specialist cancer services (adults) 105 (page 235)</p> <p>NHS England. National Programmes of care and clinical reference groups. B16. Complex Head & Neck (accessed 14 10 2015)</p> <p>National Service Frameworks</p> <p>Cancer</p> <p>Other policies</p> <p>Department of Health, NHS Outcomes Framework 2015-2016, Dec 2014. Domains 2, 4 and 5. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/385749/NHS_Outcomes_Framework.pdf</p>

References

1. Guidelines for the management of thyroid cancer. Third edition. British Thyroid Association. February 2014.
2. Wheatman A (2016) [Thyroid Cancer](#). In: Warrell D, Cox T, Firth J, editors. Oxford Textbook of Medicine 5th Edition. Oxford: Oxford University Press [accessed May 2016]
3. Thyroid cancer incidence statistics. Cancer Research UK [accessed May 2016]
4. Guidelines for the management of thyroid cancer. Third edition. British Thyroid Association. February 2014.
5. Thyroid cancer incidence statistics. Cancer Research UK [accessed May 2016]

6. Guidelines for the management of thyroid cancer. Third edition. British Thyroid Association. February 2014.