

- Title** Trastuzumab for Metastatic Breast Cancer and Economic Evaluation
- Agency** HTA Malaysia, Health Technology Assessment Section, Medical Development Division, Ministry of Health Malaysia
Level 4, Block E1, Parcel E, Presint 1,
Federal Government Administrative Center, 62590 Putrajaya, Malaysia
Tel: +603 88831229, Fax: +603 88831230; htamalaysia@moh.gov.my, www.moh.gov.my
- Reference** Technology Review Report 014/2016, online:
http://www.moh.gov.my/index.php/database_stores/store_view_page/30/299

Aim

To review evidence on the effectiveness, safety and cost-effectiveness of trastuzumab; to conduct local economic evaluation in order to estimate the ICER between the current treatment using docetaxel alone and treatment with docetaxel and trastuzumab in HER-2 positive MBC

Conclusions and results**Effectiveness:**

High level of retrievable evidence; concurrent therapy was superior either to docetaxel alone or sequential therapy as first-line treatment of patients with HER-2 positive MBC with regard to response rate and overall survival

Safety:

High level of retrievable evidence; incidence of adverse drug reaction (haematology/non-haematology toxicity) was higher in the concurrent therapy compared to either docetaxel alone or sequential therapy; cardiac toxicity was similar in both treatment groups

Cost-effectiveness:

There was evidence to suggest that the combination therapy of trastuzumab plus docetaxel as first-line treatment of patients with HER-2 positive metastatic breast cancer was found to be cost-effective in studies conducted in Brazil and Sweden

Local economic evaluation:

The combination treatment of trastuzumab and docetaxel produced a high ICER (RM 322,533 per QALY gained) that is not within the suggested value of cost-effectiveness threshold by WHO (1-3 times GDP per capita). Taken into consideration of cost-effectiveness threshold for Malaysia which is ≤ 1 GDP per capita, this treatment is considered to be not cost-effective from the Ministry of Health perspective.

Recommendations (if any)

Based on the review, combination treatment of trastuzumab and docetaxel is considered to be not cost-effective and hence, is not recommended to be used.

Methods**Part A (Systematic review of literature)**

Electronic databases were searched through the Ovid interface: Ovid MEDLINE® In-process and other Non-indexed citations and Ovid MEDLINE® 1946 to present, EMBASE – 1996 to 8 June 2016, EBM Reviews - Cochrane Central Register of Controlled Trials - June 2016, EBM Reviews - Cochrane Database of Systematic Reviews - 2005 to June 2016, EBM Reviews - Health Technology Assessment – 1st Quarter 2016, EBM Reviews - Database of Abstracts of Reviews of Effects – 1st Quarter 2016, EBM Reviews – NHS Economic Evaluation Database 1st Quarter 2016. Searches were also run in PubMed. Google was used to search for additional web-based materials and information. No limits were applied. Additional articles were identified from reviewing the references of retrieved articles. Last search was conducted on 8th June 2016.

Part B (Local economic evaluation)

A Markov model was built using Microsoft EXCEL. The choice of developing a state transition model (Markov cohort simulation) was based on literature review of economic evaluations and further agreed by the clinical oncologist. The model was used to estimate the costs and utility effects for a hypothetical cohort of 5,000 women with metastatic breast cancer in two treatment strategies, trastuzumab with docetaxel compare to docetaxel alone. The perspective of the Ministry of Health was used to estimate the costs, and the benefits were measured in quality adjusted life years (QALYs) and life years gained (LYG).

All costs and benefits were discounted at 3.0% annually as recommended in the Malaysian Pharmacoeconomics Guidelines. The outcome was measured as incremental cost-effectiveness ratio (ICER). One-way sensitivity analyses and probabilistic sensitivity analyses (Monte Carlo simulation) were carried out to test the robustness of the results. A scenario analysis was also included as part of the sensitivity analysis in which an ICER value was calculated based on an alternative scenario.

Further research/reviews required

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Written by

Dr. Nafisah Ahmad Lutfi, Syful Azlie Md Fuzi, Nurhafiza Md Hamzah, MaHTAS, Malaysia