

Cost effectiveness analysis of Cetuximab treatment of locally advanced head and neck cancer

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Background: Head and neck cancer accounts for a range of 4-14% of all cancer cases seen. It is estimated to be 3700 new cases/year. Locally advanced squamous cell carcinoma of the head and neck (LA-SCCHN) accounts for 47.5-75% of all head and neck cancer. With the development of innovative and targeted therapy for treatment of some questions was raised from payer side need an answer such as: are these innovative products worthy for reimbursement? What is the impact on budget? What is the appropriate use and indication for these products to enhance outcomes and utilize resources?

Objective: The main objective behind conducting this study was to conduct an economic evaluation of cetuximab with radiotherapy versus radiotherapy alone in treatment of LA-SCCHN from the payer perspective (the Ministry of Health: MOH), over a time horizon of 10 years; and to maximize health gain for the patients while ensuring the most efficient use of the finite resources available to the Egyptian Ministry of Health.

Methods: A cost-effectiveness analysis from the payer perspective using Markov chain simulation model which is hypothetical cohort model to conform the real practice of management of head and neck cancer in Egypt. Ten years' time horizon was selected to reflect the consequences of a decision. Transition probabilities from first line until progression state to best supportive care and death were derived from previously published studies; the SHARP study. Karnofsky performance status (90–100) was included in the model health outcomes and the outcome of the two treatment arms was measured by quality-adjusted life years (QALYs). Quality of life data were incorporated in the model to make adjusted results. Study costs used were the local ones according to the national

fund list. Discounting was applied at 3.5% annually. The results obtained were in term of ICER and number of QALYs. **Uncertainty analyses:** To test the stability of our results to variation in the estimates of the input model parameters, we performed various one-dimensional sensitivity analyses. Time horizon was estimated as 10 years.

Results: After ten years, total QALYs for cetuximab plus radiotherapy group was estimated to be 3.99 QALYs compared with 2.95 QALYs for radiotherapy alone, a difference of (1.04 QALYs) with ICER value of 49,143 EGP/QALY. This leads treatment with cetuximab associated with highest effectiveness and accepted costs. According to Egyptian, a willingness-to-pay threshold of \$8000 per QALY gained.

Conclusion: Adding of cetuximab to radiotherapy is likely to be cost effective for patients of LA-SCCHN with Karnofsky performance status (90–100) which lead to enhancement of patients out comes and better utilizations for resources.

Biography

Abdalla Abotaleb is one of the most profound experts in healthcare policy and regulations in the Middle East. His expertise extends from HTA & Reimbursement policies to regulatory and supply chain strategies in the public sector. He has been involved in the fields of health economics, outcomes research, and reimbursement policy within the healthcare industry for 15 years, with experience across the pharmaceutical, biologicals and vaccines. Currently he works for WHO as a Project Manager at health care reforming area. He has graduated in Faculty of Pharmacy and then obtained a Post-graduate in Health Economics followed by a PhD in Health Economics & Policy from York University.

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