Cost-effectiveness of guideline adherence in coronary patients: results from the EUROASPIRE IV survey - a registry from the European Society of Cardiology

Authors:
D De Smedt¹, L Annemans¹, K Kotseva², D Wood², G De Backer¹, D De Bacquer¹, ¹Ghent University, Department of Public Health - Ghent - Belgium, ²Imperial College London, National Heart and Lung Institute (NHLI) - London - United Kingdom,

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Background: The ESC regularly update the European guidelines on cardiovascular disease (CVD) prevention. By setting risk factor goals and target levels, as well as proposing the appropriate treatment options, physicians are guided in their patient treatment in clinical practice. Little is known about the cost-effectiveness of a comprehensive approach to tackle uncontrolled risk factor levels. This information could however be useful for policy makers to make transparent decisions. Purpose: The aim of this study was to assess the cost-effectiveness of maximal adherence to the guidelines in patients with a history of coronary heart disease (CHD).

Maximal guideline adherence, is compared with the currently observed risk factor management based on individual patient data. Methods: An individual-based decision tree model was developed in order to model the cardiovascular risk in individual patients. The model uses the SMART risk score tool which estimates the 10-year risk for recurrent vascular events in patients with manifest cardiovascular disease. Analyses were based on the EUROASPIRE IV survey, which was initiated to assess whether the guidelines are being implemented in clinical practice. In the model, results from EUROASPIRE IV are considered as current care and compared with optimized adherence to the CVD guidelines. The latter was modelled, based on the published 2016 guidelines on CVD prevention. In addition to a base case scenario, scenario analyses were performed. Outcomes were expressed as an incremental cost-effectiveness ratio (ICER). Results: Data from 4,663 EUROASPIRE IV patients from 13 European countries were included in the analyses. The mean estimated 10 year risk for a recurrent vascular event amounts to 20.13%. Initiating maximal guideline adherence results in a mean 10-year risk of 18.99%. In the base case scenario maximal adherence could result in an average QALY gain of 0.0321 and an additional cost of €2290. An ICER of €35,915/QALY was calculated when only considering high-risk patients (10 year CVD risk =20%) with decreasing ICERs in higher risk patients. Also, a dose response relationship was seen with lower ICERs in older patients and in those patients with higher risk reductions. A less conservative LDL target (<2.5mmol/L vs. <1.8mmol/L) lowered the ICER to €41,079/QALY and intensifying cholesterol treatment in high-risk patients (10 year CVD risk =20%) instead of high cholesterol patients lowered the ICER to €34,900/QALY. Applying risk reduction to the CVD events instead of applying risk reductions to the risk factors lowered the ICER to €37,763/QALY. Conclusion: Depending on the method used, better or worse ICERs were found. In addition, maximal guidelines adherence is more cost-effective in older patients, in higher risk patients, in patients with higher risk reductions and when using a less conservative LDL-C target. Current analyses advice to maximize guidelines adherence in particular patient subgroups.