



Health economic evaluation of medical therapy strategies for heart failure with reduced ejection fraction in the Netherlands

ABSTRACT

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Abstract

Aims

The cornerstone of optimal medical treatment (OMT) for patients with HFrEF is a combination of an angiotensin-converting enzyme inhibitor (ACEi) or an angiotensin receptor-neprilysin inhibitor (ARNi), beta-blocker (BB), a mineralocorticoid receptor antagonists (MRA) and a sodium glucose co-transporter 2 inhibitor (SGLT2i). Therapy for heart failure with reduced ejection fraction (HFrEF). As quickly as possible guideline directed initiation of OMT in HFrEF patients will give substantial morbidity and mortality benefits. Despite clear benefits to HFrEF patients, implementation of guideline directed initiation of OMT is slow. In our study, we carried out a cost-effectiveness analysis in which OMT is compared to other medical therapy strategies for heart failure with reduced ejection fraction in the Netherlands.

Methods and results

The base case economic analysis was conducted from the societal perspective. Health effects and costs were analysed using a Markov model. The patient population explored in the model was a cohort of 10,000 HFrEF patients equally distributed over four Kansas City Cardiomyopathy Questionnaire (KCCQ) quartiles at the start of treatment. Nine medical therapy strategies based on ACEi, ARNi, BB, MRA and SGLT2i, including OMT, were evaluated. Univariate, probabilistic sensitivity, and various sub-group analyses were performed. After elimination of dominated medical therapy strategies for HFrEF, only three strategies remain, namely the two quadruple therapies (BB + ARNi + MRA + SGLT2i and BB + ACEi + MRA + SGLT2i) and BB + ACEi. The ICERs for BB + ARNi + MRA + SGLT2i incremental to BB + ACEi + MRA + SGLT2i and BB + ACEi are 28.9 and 14.9 thousand € per QALY gained, respectively. In all sensitivity and sub-group analyses the ICER was below the €50,000 per QALY gained threshold for cost-effectiveness. If a cohort of 10,000 HFrEF patients who are currently on BB + ACEi switch to BB + ARNi + MRA + SGLT2i, 6,678 hospitalisations are expected to be prevented. Furthermore, compared to BB + ACEi + MRA + SGLT2i, switching to BB+ARNi+MRA+SGLT2i prevents 1,142 hospitalisations.

Conclusion

Initiation of guideline directed OMT for patients with HFrEF in the Netherlands is a cost-effective strategy. Furthermore, within OMT, a quadruple therapy regimen incorporating an ARNi is cost-effectiveness compared with a regimen based on an ACEi. Initiation of OMT is to expected decrease hospitalisations markedly compared to other medical therapy strategies.