中文題目：Empagliflozin 在治療心臟衰竭併左心室射出率不全的成本效益分析

英文題目：Cost-effectiveness of empagliflozin in patients with heart failure and reduced ejection fraction

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Purpose

This study aimed to investigate the cost-effectiveness of empagliflozin for patients with heart failure and reduced ejection fraction (HFrEF) in the Taiwan setting.

Methods

We constructed a Markov model to project the lifetime direct medical costs and quality-adjusted life-years of both therapies. Transitional probabilities were derived from the Empire HF trial, and the costs and utilities were obtained from the Taiwan National Health Insurance Database and published studies. One-way, scenario, subgroup, and probabilistic sensitivity analyses were performed to assess the uncertainty. Incremental cost-effectiveness ratio was presented as the outcome. The threshold of willingness-to-pay was set at US$76,368 (3 times the gross domestic product per capita of Taiwan). All analyses were operated by TreeAge 2020 and Microsoft Excel.

Results

After 15-years simulation, the empagliflozin treatment produced more quality-adjusted life years (QALYs), comparing to the placebo (9.55 versus 9.22 QALYs). Meanwhile, add-on empagliflozin needed more medical costs (US$34,083 versus US$28,989). The incremental cost-effectiveness ratio of empagliflozin versus placebo in the patients with heart failure and reduced ejection fraction were US$15,304 per quality-adjusted life-year gained. The probabilistic sensitivity analyses showed that the probabilities of cost-effectiveness for the regimen with empagliflozin versus placebo among those with HFrEF were 55.6% and 44.4% at US$76,368.

Conclusion

Empagliflozin is likely to be cost-effective as adding on the current standard treatment of HFrEF from the Taiwan national payer's perspective. The pharmacoeconomic incentives are influenced by the drug price, event treatment fees, and willingness-to-pay threshold.
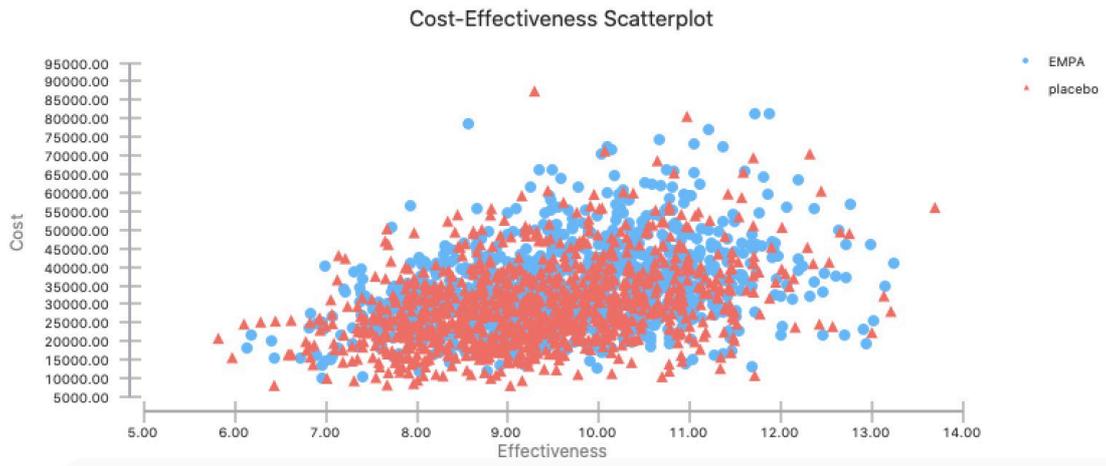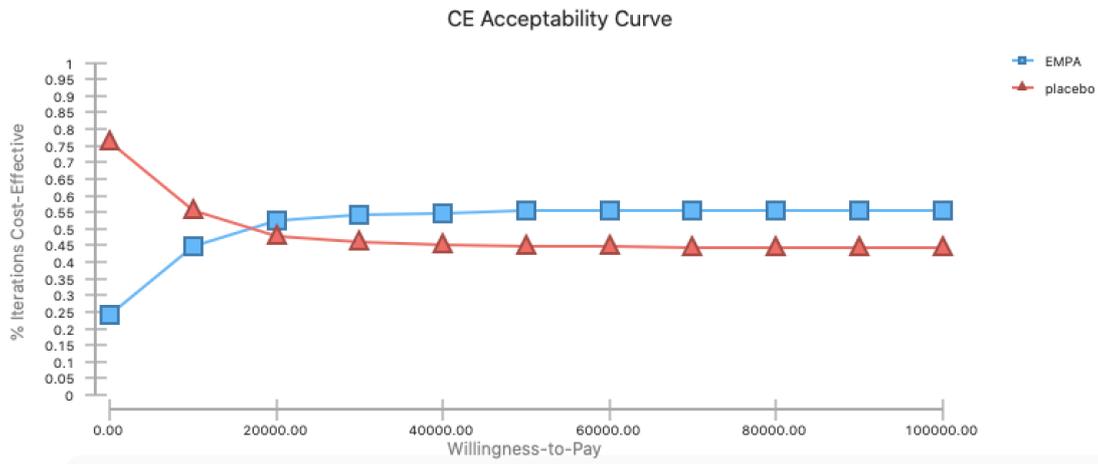
Figure 1

Figure 2