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Cost-effectiveness of dapagliflozin vs. empagliflozin for treating heart failure with reduced ejection fraction in the United States

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OBJECTIVES

- Heart failure (HF) remains a significant cause of hospitalization and mortality. Over 1 million individuals with HF are hospitalized annually, and the cost of care is projected to increase from $31 billion to $70 billion by 2030 [1-2].
- Evidence suggests that adding dapagliflozin to the prior standard of care is cost-effective compared with the standard of care alone. The recent American Heart Association (AHA)/American College of Cardiology (ACC)/Heart Failure Society of America (HFSA) guideline recommends the use of sodium-glucose cotransporter-2 (SGLT2) inhibitors in patients with heart failure with reduced ejection fraction (HFrEF).
- Adequate characterization of the relative cost-effectiveness of SGLT2 inhibitors will guide healthcare providers and patients in making informed decisions.
- We evaluated the cost-effectiveness of dapagliflozin vs. empagliflozin in patients with HFrEF from the US healthcare perspective.

METHODS

- Using a state-transition Markov model, we estimated the expected lifetime costs, QALYs, incremental cost-effectiveness ratio (ICER), and net monetary benefits (NMB) for dapagliflozin vs. empagliflozin for the treatment of HFrEF.
- Patients entered the model at age 65 and were modeled over a lifetime horizon from the US healthcare system perspective.
- Clinical probabilities were derived from a network meta-analysis.
- We discounted all future costs and QALYs at an annual rate of 3%, and the costs were presented in 2022 U.S. dollars.

RESULTS

- In the base case, the incremental expected lifetime cost of treatment with dapagliflozin compared with empagliflozin was $37,684, yielding an ICER of $44,763/QALY.
- A price threshold analysis suggested that for empagliflozin to be the most cost-effective SGLT2 inhibitor at a WTP threshold of 50,000/QALY, it may need a 12% discount on its current annual prices.

Fig 1. Markov model state transition diagram

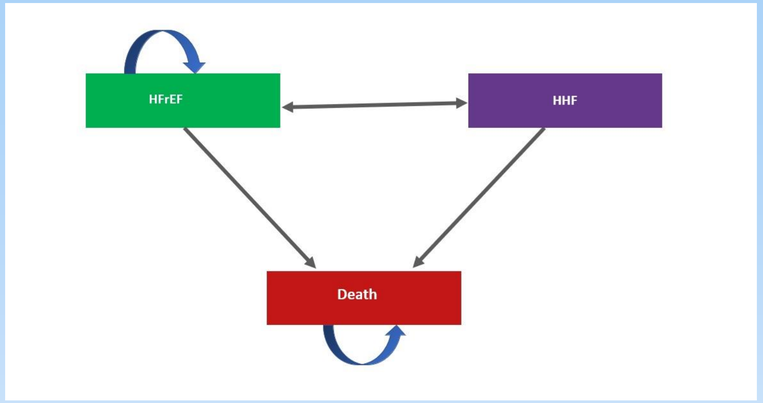

Fig 2. Cost-effectiveness frontier

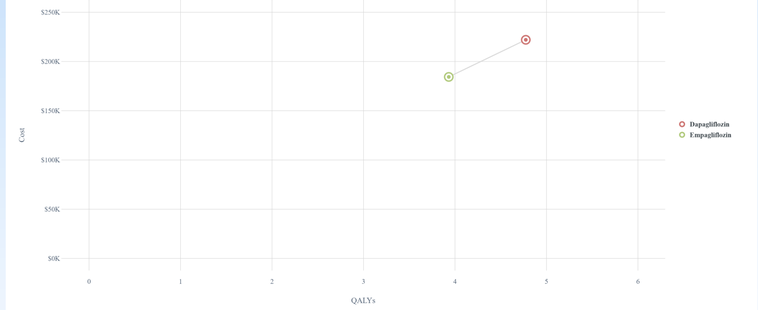

Fig 3. Cost-effectiveness acceptability curves

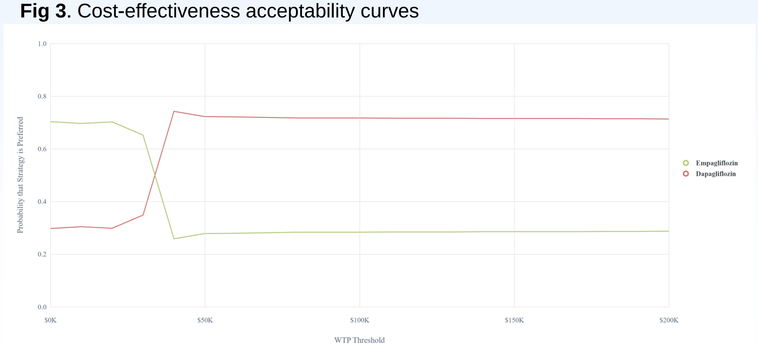

Table 1. Cost-Effectiveness of Dapagliflozin and Empagliflozin for Treating Heart Failure with Reduced Ejection Fraction in the United States

Treatment	QALY	Cost, US$	Comparator	ICER, US$/ QALY	NMB at WTP of US$50,000/QALY	NMB at WTP of US$100,000/QALY	NMB at WTP of US$150,000/QALY
Empagliflozin	3.935	184,101	-	-	12,627	209,355	406,083
Dapagliflozin	4.776	221,785	Empagliflozin	44,763	17,036	255,856	494,677

Abbreviations: ICER, incremental cost-effectiveness ratio; QALY, quality-adjusted life-years; NMB, net monetary benefit; WTP, willingness to pay threshold

CONCLUSION

- This study demonstrated that dapagliflozin provides higher health and economic value than empagliflozin.
- These findings are consistent with those of a recent study by Nguyen et al. [3].
- Since the present clinical practice guideline did not indicate a preference for one SGLT2 inhibitor over another, scalable strategies are needed to ensure affordable access to this treatment.

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