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First-Line Therapy for Type 2 Diabetes With Sodium–Glucose Cotransporter-2 Inhibitors and Glucagon-Like Peptide-1 Receptor Agonists

A Cost-Effectiveness Study

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Visual Abstract. First-Line SGLT2 Inhibitors and GLP1 Receptor Agonists: Cost-Effectiveness.

Sodium–glucose cotransporter-2 (SGLT2) inhibitors and glucagon-like peptide-1 (GLP1) receptor agonists are being used as second-line therapy for patients with type 2 diabetes. They have been so effective in this role that some knowledgeable people wonder whether they should be used instead as first-line therapy. This article examines whether they would be cost-effective in this new role.

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Background:

Guidelines recommend sodium–glucose cotransporter-2 (SGLT2) inhibitors and glucagon-like peptide-1 (GLP1) receptor agonists as second-line therapy for patients with type 2 diabetes. Expanding their use as first-line therapy has been proposed but the clinical benefits may not outweigh their costs.

Objective:

To evaluate the lifetime cost-effectiveness of a strategy of first-line SGLT2 inhibitors or GLP1 receptor agonists.

Design:

Individual-level Monte Carlo–based Markov model.

Data Sources:

Randomized trials, Centers for Disease Control and Prevention databases, RED BOOK, and the National Health and Nutrition Examination Survey.

Target Population:

Drug-naive U.S. patients with type 2 diabetes.

Time Horizon:

Lifetime.

Perspective:

Health care sector.

Intervention:

First-line SGLT2 inhibitors or GLP1 receptor agonists.

Outcome Measures:

Life expectancy, lifetime costs, incremental cost-effectiveness ratios (ICERs).

Results of Base-Case Analysis:

First-line SGLT2 inhibitors and GLP1 receptor agonists had lower lifetime rates of congestive heart failure, ischemic heart disease, myocardial infarction, and stroke compared with metformin. First-line SGLT2 inhibitors cost \$43 000 more and added 1.8 quality-adjusted months versus first-line metformin (\$478 000 per quality-adjusted life-year [QALY]). First-line injectable GLP1 receptor agonists cost more and reduced QALYs compared with metformin.

Results of Sensitivity Analysis:

By removing injection disutility, first-line GLP1 receptor agonists were no longer dominated (ICER, \$327 000 per QALY). Oral GLP1 receptor agonists were not cost-effective (ICER, \$823 000 per QALY). To be cost-effective at under \$150 000 per QALY, costs for SGLT2 inhibitors would need to be under \$5 per day and under \$6 per day for oral GLP1 receptor agonists.

Limitation:

U.S. population and costs not generalizable internationally.

Conclusion:

As first-line agents, SGLT2 inhibitors and GLP1 receptor agonists would improve type 2 diabetes outcomes, but their costs would need to fall by at least 70% to be cost-effective.

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American Diabetes Association.



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