TITLE: Cost-Effectiveness of GLP-1 RA Plus SGLT2i Versus SGLT2i In Patients with Chronic Kidney Disease

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OBJECTIVE

Chronic kidney disease (CKD) affects >35M Americans, with Medicare expenditures >$100B/year. Clinical KDIGO guidelines recommend glucagon-like peptide-1 receptor agonists (GLP-1 RA) for patients with diabetic CKD not meeting glycemic targets with metformin + sodium-glucose transporter 2 inhibitor (SGLT2i) treatment. We evaluated cost-effectiveness of adding GLP-1 RA to SGLT2i and standard care (SC) in CKD+T2D.

METHODS

We used a multistage Markov model to simulate CKD progression in a hypothetical cohort of 10,000 patients with CKD+T2D over a 30-y lifetime horizon from U.S. payer perspective. Cohort characteristics and efficacy data were from CKD trials in a recent meta-analysis (mean age, 66 y; initial eGFR, 43.7 mL/min). Treatment strategies were GLP-1 RA + SGLT2i + SC vs. SGLT2i + SC. Cost included drug expenses, regular monitoring, and complications. We measured effectiveness in quality-adjusted life years (QALYs) and incremental cost-effectiveness ratios (ICERs). Sensitivity analyses evaluated impact of dynamic drug pricing over product life cycles and model inputs.

RESULTS

Adding GLP-1 RAs reduced ESRD incidence (6.4 vs 7.6%), and increased life expectancy (10.59 vs. 9.79 y) and QALYs (8.76 vs. 8.35 QALYs) compared to SGLT2i + SC alone. Total lifetime cost increased from $67,847 to $111,304. Adding GLP-1 RAs had an approximate ICER of $100,000/QALY gained, below U.S. willingness-to-pay threshold ($150,000/QALY). Sensitivity analyses confirmed robustness to variations in GLP-1 RA efficacy, disease management costs, discount rate. Dynamic drug pricing reduced the ICER to $63,000/QALY.

CONCLUSION

Adding GLP-1 RAs to SGLT2i and SC is cost-effective in diabetic CKD patients over a lifetime horizon. The findings highlight economic and clinical value of GLP-1 RAs, aligning with KDIGO guidelines.