

Cost-effectiveness of pembrolizumab for adjuvant treatment of patients with renal-cell carcinoma who have undergone nephrectomy in Colombia

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Background

In Colombia, the incidence of renal-cell carcinoma (RCC) is increasing, and nearly two-thirds of the cases are diagnosed without evidence of metastatic disease.¹ According with recent ASCO GU 2024 the KEYNOTE-564 (KN564) trial demonstrated that pembrolizumab as adjuvant treatment significantly improved disease-free survival and overall survival compared to placebo after nephrectomy among patients with RCC who were at intermediate-high or high risk of recurrence.²

Objective

To evaluate the cost-effectiveness of pembrolizumab as an adjuvant treatment compared to routine surveillance in patients with RCC who have undergone nephrectomy and have intermediate-high risk, high risk of recurrence, or M1 no evidence of disease (NED). The evaluation was conducted from the perspective of a Colombian third-party payer.

Methods

A Markov cohort model was developed, consisting of four mutually exclusive health states: disease-free, locoregional recurrence, distant metastasis, and death. This model was used to simulate the lifetime disease course of patients based on efficacy and safety data obtained from the results from 30-month follow-up of KN564 trial.³ Health outcomes and costs were discounted at an annual rate of 3%. The time-on-treatment was estimated using observed Kaplan-Meier curves from the KN564 trial. Utility inputs were derived from the EuroQoL-5D questionnaire administered in both the KN564 and KEYNOTE-426 trials. Costs related to initial and subsequent therapies, disease and adverse events management, as well as terminal care, were estimated using publicly available drug and healthcare price lists for 2022.

Results

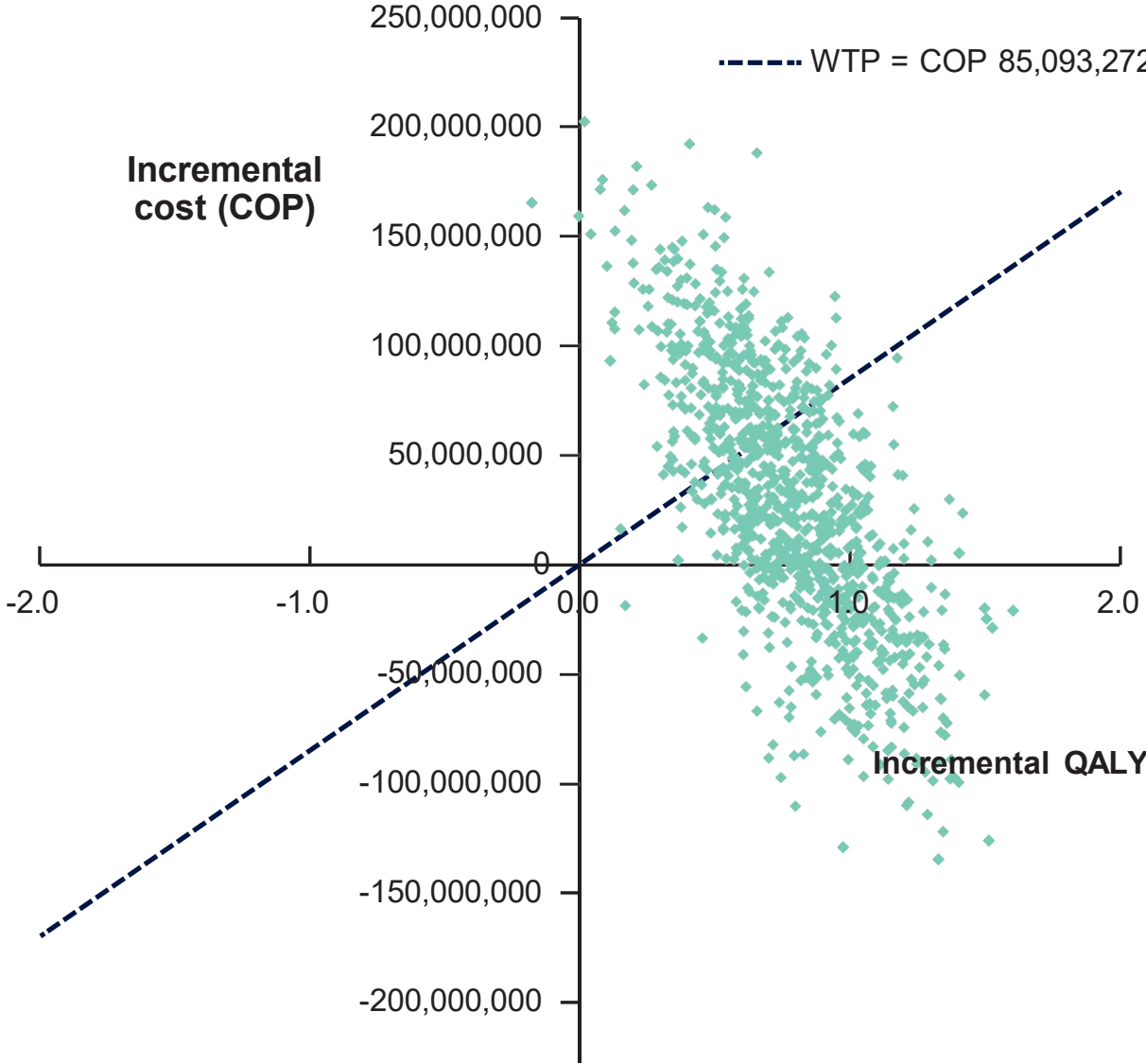
Over a 41.1-year time horizon, patients who received pembrolizumab as adjuvant treatment accrued an additional 0.88 life-years (LYs) and 0.81 quality-adjusted life-years (QALYs) compared to those who underwent routine surveillance; outcomes under conservative approach given the short follow-up time. The resulting incremental cost-effectiveness ratios (ICERs) were COP 26,488,299/LY and COP 28,783,889/QALY, which were located far below the willingness-to-pay threshold of COP 85,093,272 in Colombia (based on 3 GDP per capita).

Table 1. Base case analysis results (pembrolizumab in monotherapy vs routine surveillance)

Outcomes	Pembrolizumab	Routine surveillance
Total costs (COP)	662,971,513	639,746,910
Adjuvant treatment costs	297,502,435	0
Subsequent treatment costs	349,658,532	617,049,695
Adverse event costs	116,814	44,967
Disease management costs	12,254,638	17,680,217
Terminal care costs	3,439,094	4,972,030
Indirect costs	0	0
Effectiveness		
Quality-adjusted life years (QALY)	9.46	8.66
Disease-free	8.02	5.87
Locoregional recurrence	0.45	0.75
Distant metastases	1.47	2.45
AE-related disutility	-0.0052	-0.0019
Age-related disutility	-0.47	-0.41
Life years (LY)	11.67	10.79
Disease-free	9.24	6.76
Locoregional recurrence	0.54	0.89
Distant metastases	1.88	3.14
Incremental results		
Incremental costs (COP)	-	23,224,604
Incremental QALYs	-	0.81
Incremental LYs	-	0.88
Incremental costs per QALY gained	-	28,783,889
Incremental costs per LY gained	-	26,488,299

COP, Colombian pesos; LY, life years; QALY, quality-adjusted life years; AE, adverse event.

Figure 1. Incremental cost and effectiveness plane: Pembrolizumab vs routine surveillance



Sensitivity analyses showed consistent results over plausible values of key model inputs and assumptions. The probability of being cost-effective was 67.7% vs routine surveillance.

Conclusion

From a third-party payer perspective, pembrolizumab as adjuvant treatment is cost-effective compared to routine surveillance for patients with RCC who have undergone nephrectomy in Colombia.

References

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Diclosures

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