

Publication

A cost-effectiveness analysis of pembrolizumab with or without chemotherapy for the treatment of patients with metastatic, non-squamous non-small cell lung cancer and high PD-L1 expression in Switzerland.

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Pembrolizumab monotherapy or in combination with chemotherapy are two new treatment options for patients with metastatic non-squamous non-small cell lung cancer (NSCLC) and high ($\geq 50\%$) programmed death ligand 1 (PD-L1) expression. We conducted a cost-effectiveness analysis for Switzerland comparing these two options but also pembrolizumab to chemotherapy.; We constructed a 3-state Markov model with a time horizon of 10 years. Parametric functions were fitted to Kaplan-Meier overall survival (OS) and progression-free survival (PFS) using 2-year follow-up data from the KN-024 and KN-189 registration trials. We included estimated costs for further treatment lines and costs for best supportive care. Costs were assessed from the Swiss healthcare payer perspective. We used published utility values.; Combination therapy resulted in an expected gain of 0.17 quality-adjusted life years (QALYs) per patient and incremental costs of Swiss Francs (CHF) 81,085 as compared to pembrolizumab. These estimates led to an incremental cost-effectiveness ratio (ICER) of CHF 475,299/QALY. Pembrolizumab in comparison to chemotherapy was estimated to generate mean incremental QALYs of 0.83 and incremental costs of CHF 56,585, resulting in an ICER of CHF 68,580/QALY. Results were most sensitive to changes in costs of 1L pembrolizumab and combination therapy, together with changes in PFS. In the probabilistic sensitivity analysis, we estimated combination therapy was cost-effective in 4.9% of the simulations and pembrolizumab monotherapy in 82.9%, assuming a willingness-to-pay threshold of CHF 100,000 per QALY gained.; Pembrolizumab is likely to be cost-effective from the Swiss healthcare payer perspective, whereas pembrolizumab plus chemotherapy is not.

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